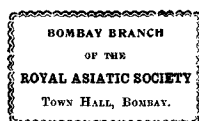


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662

Rules and Examples of PERSPECTIVE

PROPER FOR

Painters and Architects, etc.

In English and Latin:

Containing a most easy and expeditious Method to

DELINEATE in PERSPECTIVE

All DESIGNS relating to ARCHITECTURE,

AFTER A NEW MANNER,

Wholly free from the Confusion of Occult Lines:

BY THAT GREAT MASTER THEREOF,

ANDREA POZZO, *Soc. J. S.*

Engraven in 105 ample folio Plates, and adorn'd with 200 Initial Letters to the Explanatory Discourses: Printed from Copper-Plates on y^e best Paper

By John Sturt.

Done into English from the Original Printed at Rome 1693 in Lat. and Ital.

By M^r John James of Greenwich.



L O N D O N :

PRINTED for J. Senex and R. Gosling in Fleetstreet; W. Innys in S^t Pauls Church Yard; J. Osborn and T. Longman in Paternoster Row.





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PERSPECTIVA
PICTORUM
ET
ARCHITECTORUM,
ANDREÆ PUTEI,
E SOCIETATE IESU.

In quâ docetur Modus expeditissimus Delineandi
Opticè omnia quę pertinent ad Architecturam.



L O N D I N I:

Juxta Exemplar ROMÆ excusum, MDCXCIII.

Ex Sculpturâ Joannis Sturt, et ejusd. Curâ adornata:

SUMPTIBUS J. Senex, R. Golling, G. Innys, J. Osborn et T. Longman.



TO
Her most Sacred Majesty,
QUEEN ANNE.

May it please your Majesty.



*THE Condescension of the late Emperor
of Germany to patronize this WORK
in the Original, could not have incited
me to the Presumption of laying the
Translation at Your Royal Feet ; had not the Art of
PERSPECTIVE, of which it treats, been so nearly ally'd*

(a)

to

DEDICATION.

to the noble Arts of PAINTING and ARCHITECTURE. The First of these your Majesty has been pleas'd to honour, as well in expressing a Satisfaction with the Performances, as in extending Your Royal Munificence to that great Master thereof, Signor Verrio.

AND altho Affairs of higher Consequence have hitherto deferr'd your Majesty's Commands for Raising WHITE-HALL from its Ruins; yet has not Architecture been without Encouragement, under Your Majesty's Most Auspicious Reign: Witness the great Dispatch lately given to those Noble Fabricks of St. PAUL's, Greenwich-Hospital, and Blenheim.

THESE seem to presage, that a Time is coming, when thro' the Blessing of Peace, and the happy Influence of Your Majesty's Government, WHITE-HALL shall become a Structure worthy its Great Restorer, and its Name as much Celebrated among Palaces, as Your Royal Virtues are Illustrious among Princes: When Your Majesty's Subjects shall exert themselves as much to their Country's Honour, in the Arts of Design, and Civil Architecture, as they have already done in the Art Military, and Personal Valour.

*PRELIMINARY to such Happy Season, I presume this Art of Perspective made Practicable, may not be improper; being One of the most Useful, tho hitherto
the*

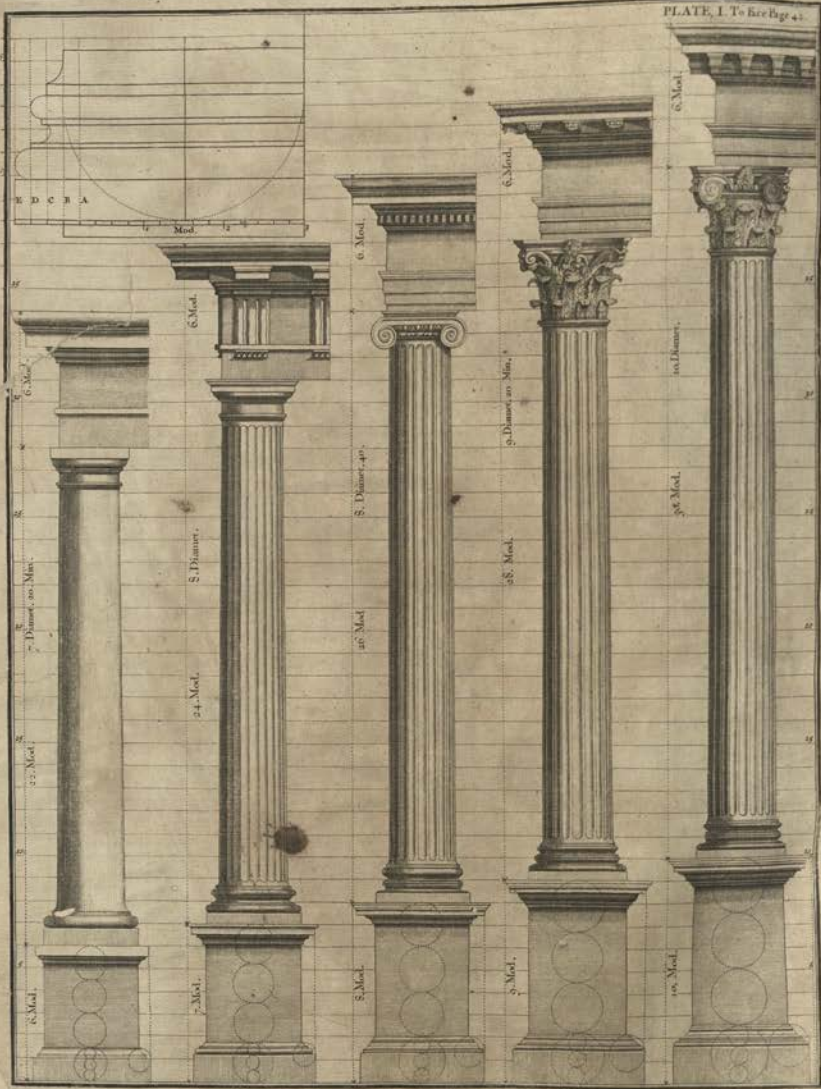
DEDICATION.

the most Obscure and Confus'd, of all the Lineary Arts. I, therefore, with all Submission, beg Leave to supplicate Your Majesty's Pardon for this Address, and Your Gracious Protection of this Specimen of English Graving; to which, if Your Majesty vouchsafe Your Royal PATRONAGE, it will effectually animate the future Endeavours of,

May it please your Majesty!

Your Most Obedient Subject,

J. STURT.



6

P R E F A C E

TO THIS

TRANSLATION.



NOTWITHSTANDING the *Art* of PERSPECTIVE must be acknowledg'd so highly and indispensably requisite in the Practice of *Painting*, *Architecture*, and *Sculpture*; that in the First of these especially, nothing commendable can be perform'd without its Assistance: Yet such have been the Difficulties and Obscurities met with in the first Attempts, and so great the Perplexity and Confusion of Lines in the Practice thereof; that the best Instructions, hitherto made *English*, have invited very few to such a Prosecution of this Study, as might render their Performances of this kind, truly valuable.

'TIS something unaccountable, that, among so many learned Persons as have handled this Subject, *Priests*, *Architects*, and *Painters*; very few, if any of them, have given Directions proper for shunning that Disorder and Confusion of Lines, which, in most Instances, must necessarily attend the Execution of their Rules: In all or most of which the whole Space for the Performance is confin'd between the Lines of the Plan and Horizon; which, where the Scale is small, and the Height of the Eye not very much advanc'd, renders the Work exceedingly confus'd; and where those Lines are coincident, (which frequently happens) the Method becomes utterly impracticable.

THIS Author's great Experience in the Practice of *Perspective*, having furnish'd him with excellent RULES for Shortning the Work, and Obviating the foremention'd Difficulties; he has here very generously imparted them, and especially the latter, in the Tenth and Eleventh Figures. And tho on Perusal of the first three or four Plates, this Method may possibly seem the same that some others have before made use of; yet whoever shall diligently observe and copy the Rules and Examples of the succeeding Figures, must necessarily acknowledge the great Advantage this has in a Perspective-Plan and Upright, clear and distinct; whence the finish'd Piece is deduc'd, without the least Incumbrance of the Work. The Explanations of the Rules here given, are short and instructive; and the Architectonical Designs produc'd to exemplify them, Noble and Magnificent.

THE Manner of Designing, where the Perspective is drawn on several Ranges of Frames one behind the other, and such Scenes of Theaters whose Grooves lie oblique

P R E F A C E.

to the middle Line, is also here laid down : And by our Author's Method, *Horizontal Perspective*, or that of Ceilings, is render'd less difficult than the *Vertical*, or that against an upright Wall. Upon the whole, nothing seems wanting that may make a Work of this nature complete ; unless what concerns Designs which are either Circular, or abound with many Columns : For the Performance whereof, the Author, as he promises in the Sixty-fifth Figure, has, in a SECOND Volume, given a Rule more proper for the purpose ; which also may possibly be made *English* in due time, if this Part meet with Encouragement.

WHAT the Author once intended should make a Part of that Second Volume, he afterwards inserted in the Ninety-third and following Figures of this Book : In the last of which, particular Notice should be taken of his Conclusion ; *That if Painters would not run into inextricable Errors, they ought as strictly to observe the Rules of Perspective, in designing the Figures of Men and Animals, as they do in painting Columns, Cornices, or other Parts of Architecture.*

THAT none therefore be discourag'd in their first Attempts, thro' the Brevity or Silence of our Author, (who, writing in a Country where the Principles of this Art are more generally known than with Us, had no need to insist so long on some things, as might be thought necessary to *Beginners*) we shall endeavour to speak as plainly as we can to a Point or two, most liable to be misunderstood, or to prove a Stumbling-Block at the Entrance ; and then add a Word of Advice to such as shall attempt the putting these Rules in Execution.

THE Author, in both his Explanations of the first Plate, has given some Account of what he would have his Reader understand, by *Designing in Perspective* : and a right Conception of this Point being of great Use to facilitate the Work, we thought it not improper, to describe something more particularly, what is meant by the Art *Perspective* ; but shall at present speak only of That, which, whether Vertical or Horizontal, is receiv'd on a Flat and Even Superficies : This being of much the more general Use ; and, when rightly understood, renders the Difficulties of the Circular or Irregular Surfaces, easy and familiar.

PERSPECTIVE is the Art of Delineating, on a flat Superficies, as a Wall, Ceiling, Canvas, Paper, or the like, the Appearances of Objects, as seen from One determinate Point : For tho in Works of great Length, Two, Three, or more Points of Sight are sometimes made use of ; yet such may more properly be said to be Several Views conjoin'd, than One Piece of Perspective : Of which see the Author's Opinion, at the End of this Treatise.

IN Perspective, the Eye of the Beholder is esteem'd a Point, from whence Rays are suppos'd to proceed to every Angle of the Object. The Wall or Canvas to be painted (which we shall here call the *Section*) is imagin'd to intervene at right Angles to the Axis of the said Rays ; and by dissecting them, to receive the Appearance of the Object, in greater or less Proportion, as the Section is more or less remote from the Point of Sight. Our Author's Rule is, That the Distance of the Eye ought to be equal to the greatest Extent

P R E F A C E.

Extent of the Object, whether in Length or Height : As, to view a Building that is a hundred Foot long, and fifty high ; he would have the Distance a hundred Foot : To view a Tower sixty Foot wide, and a hundred and fifty Foot high ; the Distance should be a hundred and fifty Foot. This Distance is not strictly to be understood of the Space between the Eye and the Object, but of the Space between that and the Section, the Plan of which our Author calls the Line of the Plan, or Ground-line ; for it's often requisite, that the Section be plac'd at some Distance before the Object, on account of Projectures of Cornices, and other Parts of the Work that advance, as in the Eighth Figure.

THE Place of the Eye, with respect to its Height above the Ground, ought to be such, as is most natural and agreeable to the Object. Thus in *Architecture*, the Basements and inferior Parts of a Building are improper to be set above the Eye, and their Cornices and Entablatures have but an ill Effect when below it. *General Perspectives* indeed require the Sight to be taken at a Bird's View ; and on other Occasions the Place of the Eye may be vary'd : but the best and most general Rule is, not to exceed five or six Foot Height above the Ground. The Height of the Eye above the Ground, thro' which a Line is drawn, call'd the *horizontal Line*, is set on by the same Scale of Proportion, as the Design bears to the real Work ; and the Point of Sight so plac'd therein, as may render the Object most agreeable. From the Point of Sight, either on one or both sides in the horizontal Line, you are to set, by the same Scale, the Distance you stand from the Section. And by means of these Points of Sight and Distance, and the Measures of the Parts brought on the Lines of the Plan and Elevation of the Section, by the same Scale ; all the Examples of this Volume are reduc'd into Perspective ; as is manifest on Inspection of the Figures.

WHAT we would add, by way of Advice, is,

I. THAT you very carefully observe, what the Author understands by *Breadth*, *Length*, and *Height*, in his Explanation of the Fifth Plate, before you proceed to practise on any Figure ; otherwise you'll certainly misunderstand him, especially in the Third Figure.

II. THAT the Rules of the Tenth and Eleventh Figures be particularly regarded, for avoiding Confusion in the Plans and Uprights.

III. THAT from the Disposition of the Perspective-Plans and Uprights, with respect to the finish'd Pieces in the Twelfth and many following Figures, you would observe, with what Dispatch the said Pieces may, without the help of Compasses, be delineated by your Drawing-Square ; viz. the Perpendiculars from the Perspective-Plan, and the level Lines from the Perspective-Upright, or Section.

IV. THAT you would accustom yourself in Works that have many Lines, to make the Perspective-Plans and Uprights for each Part distinct, so as to prevent all Danger of Confusion. Thus you may have one Plan and Upright for the Basement of a Building ; and when that is drawn on your finish'd Piece, remove them, and place those of the Body of the House ; and when that's complete, do so by the *Attick*, &c. always observing

Lectorem Perspectivæ studiosum.



RS Perspectiva, oculum, licet sagacissimum inter sensus nostros exteriores, mirabili cum voluptate decipit; eademque necessaria est iis, quibus in pingendo, tum singulis figuris positionem ac deformationem suam congruè tribuere, tum colores & umbras, magis vel minus intendere aut remittere, prout oportet, curæ est. Ad id autem sensim sine sensu illi perveniunt, qui solo studio Graphidis non contenti, singulis Architecturæ Ordinibus exactè deformandis assueverint. Nihilominus, inter multos qui opus huiusmodi magno impetu aggressi hucusque fuerunt, paucos numeramus, qui alicui ipso statim initio non desponderint, ob magistrorum librorumque penuriam,

ordinatè ac perspicuè docentium opticas projectiones, à principiis hujus artis, usque ad omnimodam perfectionis consummationem. Quum autem sentiam, longâ multorum annorum exercitatione, me non minimam facilitatem in hac disciplina mihi parasse: censeo studiosorum voluntate me satisfacturum, eorumque profectui consulturum, si methodos expeditissimas in lucem proferam, ad singulorum Architecturæ Ordinum opticas delineationes perficiendas, adhibita communi regulâ, ex qua omnia linearum occultarum offendicula sustulimus. Deinde, si tempus & vires ad aliud Opus conscribendum Bonitas Divina dederit, projectiones quasunque absolvemus regulâ quâ in præsentia uti soleo, ac multâ faciliior & universaliior est regula communi & vulgata, quamvis hæc sit fundamentum alterius. Itaque, Lector studiosè, constanti animo negotium tuum suscipe; ac lineas omnes tuarum operationum, ad verum oculi punctum ducere, ad gloriam scilicet DEI O.M. tecum omnino decerne. Sic votis honestissimis, ut auguror tibi ac spondeo, feliciter poteris.

T O

The Lovers of Perspective.



THE Art of PERSPECTIVE does, with wonderful Pleasure, deceive the Eye, the most subtle of all our outward Senses; and is very necessary to be known of all, who in Painting would give a due Place and Proportion to their Figures, and more or less Strength requisite to the Lights and Shades of the Picture. This might be insensibly attain'd, if Persons, not content with the Study of Drawing only, would accustom themselves exactly to delineate the several Orders of Architecture. Nevertheless, among many who have hitherto vigorously undertaken this Work, there have been but very few, who have not been in a manner

quite discourag'd, thro' want of Masters and Books to teach them clearly and methodically the Rules of Perspective-Projections, from the first Principles of the Art, to the entire Perfection thereof. Wherefore, apprehending that by long and constant Practice in Works of this kind, I had acquir'd a Method to facilitate the same; I judg'd it might be for the Satisfaction and Advantage of the Studios, to publish the shortest way for designing in Perspective the several Orders of Architecture, by a common and easy Rule, free from the Incumbrances of occult Lines. But if it please God to give me Life and Health to compose another Book, I shall then shew the Method of putting Works into Perspective by the Rule I make use of at present, which is more easy and general than the common way, tho this be the Foundation of the other. Therefore, Reader, my Advice is, that you chearfully begin your Work, with a Resolution to draw all the Points thereof to that true Point, the Glory of GOD; and I durst predict, and promise you good Success in so honourable an Undertaking.

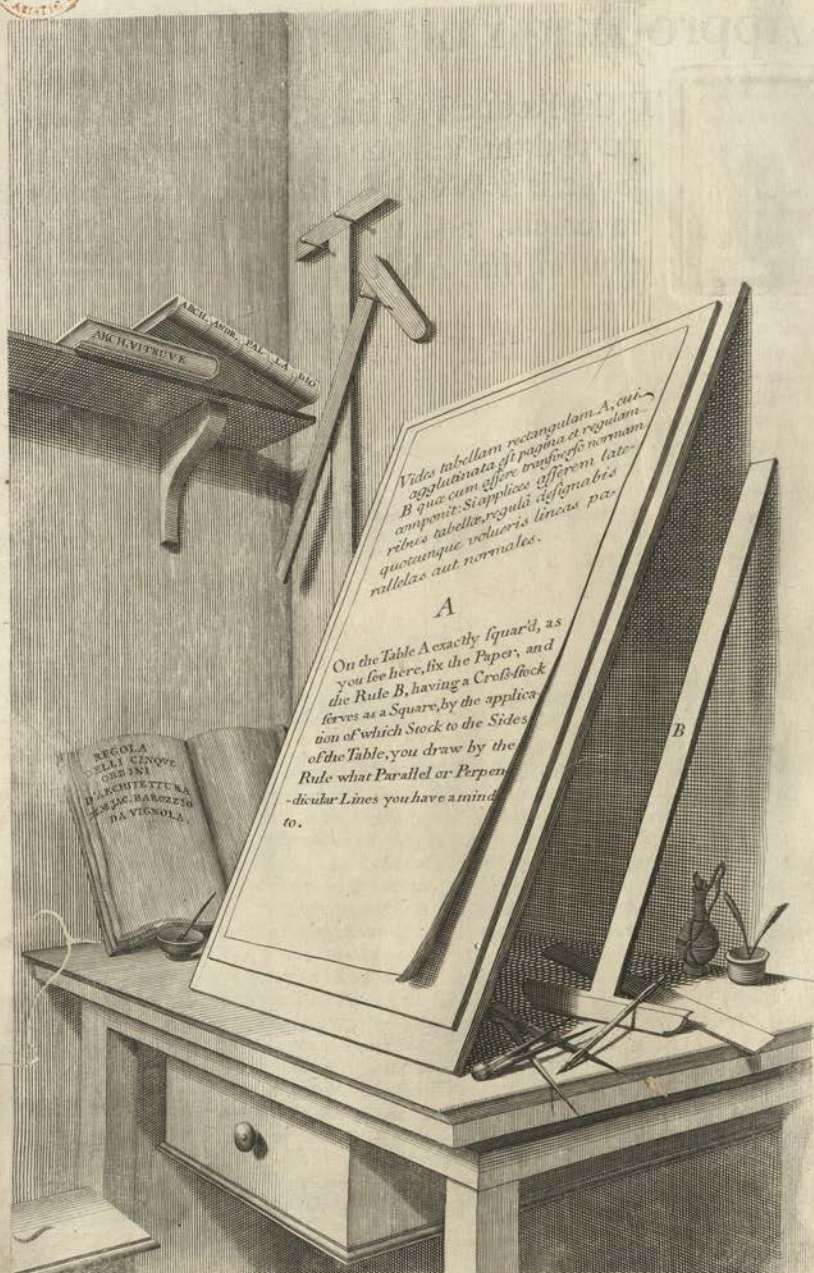
THE

Approbation of this Edition.



At the Request of the Engraver, We have perus'd this Volume of PERSPECTIVE; and judge it a WORK that deserves Encouragement, and very proper for Instruction in that ART.

*Chr. Wren,
J. Vanbrugh,
N. Hawksmoor.*



POZZO's
ARCHITECTURE
IN
PERSPECTIVE.

FIGURA PRIMA.

Explicatio lineatum Plani & Horizontis, ac Punctorum Oculi & Distantie.



T principia Perspectivæ facilius intelligas, pono tibi ob oculos Templum, in cujus interiori facie, præter cætera, pingendum sit aliquid ad Perspectivam pertinens. Templi hujus vestigium geometricum est A, elevatio geometrica in longum est B, in latum est C. In A est locus Hominis aspicientis lineam DE, cui paries pingendus incumbit. In B idem Homo ex eadem distantia intuetur lineam FG, quæ refert elevationem parietis. In figura C supponimus Hominem consistere è regione ipsius parietis: easdemque proportionibus mensurarum translatas esse ex vero pariete in figuram C, quæ ipsum in parvo representat.

Prima ergo linea HI dicitur linea terræ vel plani, ex quâ incipit, eidemque incumbit Edificium. Secunda linea NON priori parallela, dicitur horizontalis, in quâ ponitur O punctum oculi, & N punctum distantie. Duo autem puncta distantie à nobis posita sunt, ut unum adhibeas ex quâ parte volueris; nam ad figuras optice

contrahendas sufficit unum punctum distantie: nec fieri potest ulla optica delineatio, quin primo loco designentur due parallele, una plani seu terre, altera horizontalis, notando in lineâ horizontalis punctum oculi, seu opticum, & punctum distantie. Porro unam eandemque rem triplici Schemate representare oportuit, ut videas, locum ex quo aspicienda est figura C esse punctum N unius ex rectis NO, quam concipere debemus veluti normaliter infixam in O; ac distantiam inter O & N eandem esse debere cum distantia inter A & DE, inter B & GF.

In picturis multum spatii occupantibus, punctum oculi poni solet in medio lineæ horizontalis: atque ubi altitudo picture sit major latitudine, distantia NO fiet equalis altitudini. Si latitudo picture sit major altitudine, distantia NO fiet equalis latitudini; ita enim unico intuitu totum picture spatium comprehendere poteris. Porro quamvis eadem distantia diverso modo adhibeatur in vestigio A, & in elevationibus B & C; nihilominus sectiones visualium cum pariete vestigii A, & elevationis B, omnino conspirant cum sectionibus visualium figuræ C.

Jam si velimus ut spectatori in A & B paries depictus videatur distare à lineis DE & GF, quanta est longitudo quadrati P, cujus elevatio est Q; ex punctis A & B fiant visuales ad puncta extrema quadrati, notando sectiones visualium cum pariete DE & GF, qui ab aliis vocatur velum, vitrum diaphanum, sectio, tela, vel tabula. Invenies autem, lineas RS ac TV esse æquales, ac similiter lineas XZ & YK; & sic de aliis.

The First Figure.

Explication of the Lines of the Plan and Horizon, and of the Points of the Eye and of the Distance.



HAT you may the better understand the Principles of Perspective, here is presented to your View a Temple, on the inner Wall of which, amongst other Things, one would paint something in Perspective. The Geometrical Plan of this Church is A, the Geometrical Elevation, or Upright, lengthwise is B, breadthwise is C. In A is the Place from whence a Man beholds the Line DE, which is the Plan of the Wall that is to be painted: in B the same Man, from the same Distance, looks upon the Line FG, that represents the Elevation of the Wall. In Fig. C, the Man is suppos'd to stand opposite to the said Wall; and this Figure contains in little, the very same Proportions of Measures transferr'd from the real Wall.

The first Line therefore HI is call'd the Ground-line, or Line of the Plan, at which the Edifice begins, and on which it stands. The second Line NON, parallel to the former, is call'd the Horizontal Line, wherein is plac'd O the Point of the Eye, and

N the Point of the Distance. Two Points of Distance are here laid down, that you may make use of which you please: for that on one Side only is sufficient for the fore-shortning Figures in Perspective: Neither can any Optick Delineation, or Perspective, be describ'd, without first making two Parallels; one of the Plan or Ground line, the other of the Horizon; marking, in the Line of the Horizon, the Point of the Eye, or Sight, and the Point of Distance. It was thought besides expedient to put one and the same Thing into three Schemes or Designs, to let you see, that the Place, from which the Figure C is to be look'd upon, is the Point N, one of the right Lines NO, which must be conceived as fixt at right Angles into O; the Distance ON being the same as that between A and DE in the Plan, or between B and GF in the Upright.

In Pictures taking up a great deal of Room, the Point of Sight ought to be made in the middle of the Horizontal Line; and where the Height of the Picture happens to be greater than the Breadth, the Distance NO must be made equal to the Height. If the Breadth of the Picture exceed the Height, the Distance NO must be made equal to the Breadth: For so the Extent of the Picture be the better comprehended, or receiv'd, at one View. And altho the same Distance may seem to be used in a different manner in the Plan A, and in the Elevation B, from what it is in C; nevertheless the Sections of the visual Rays, with the Wall of the Plan A, and of the Elevation B, have a perfect Correspondence with the Sections of those of the Figure C.

Now, if to the Spectator in A and B, we would have the farthest part of the Work seem to recede from the Lines DE and GF, as much as the Square P does, whose Elevation is Q; draw from the Points A and B, the visual Rays to the extreme Points of the Square P and Q; noting the Sections they make with the Walls DE and GF; which by some is call'd the Veil, Transparent Medium, Section, Cloth, or Table: and you'll find RS equal to TV, XZ equal to YK; and so of the rest.



FIG. I.

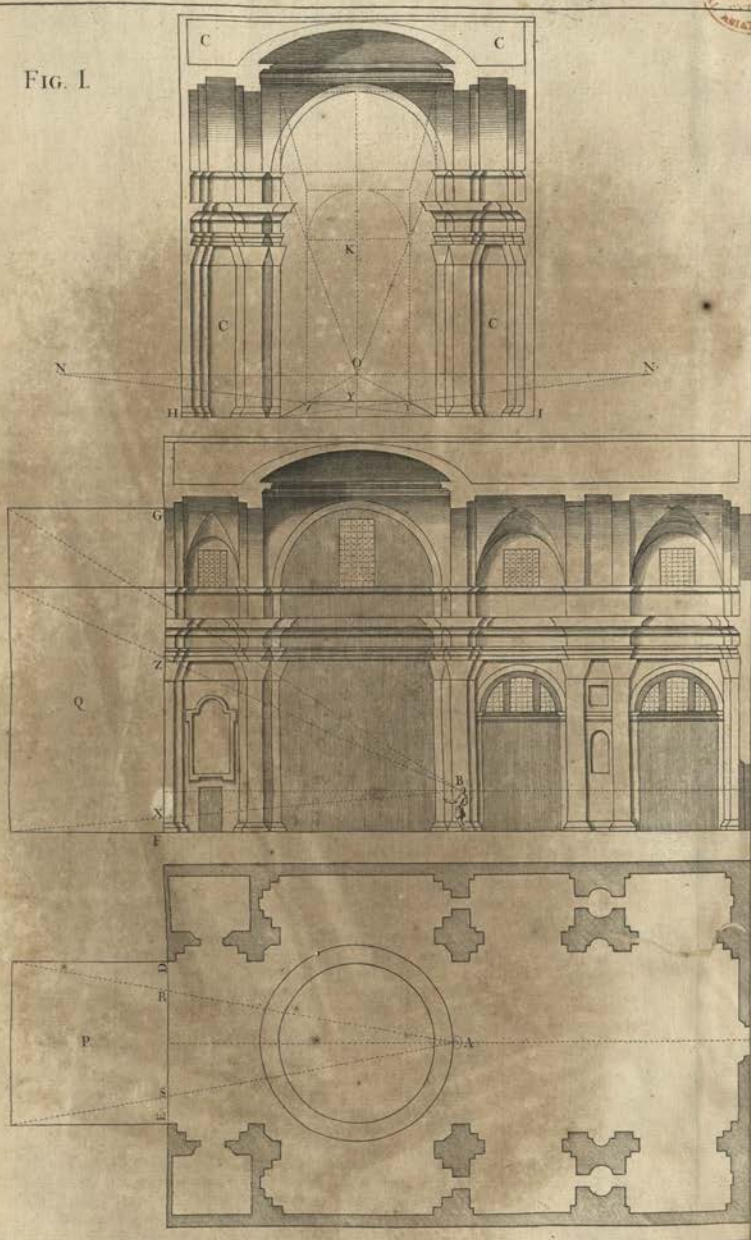




FIG. II.

E O E

B C D

A

A

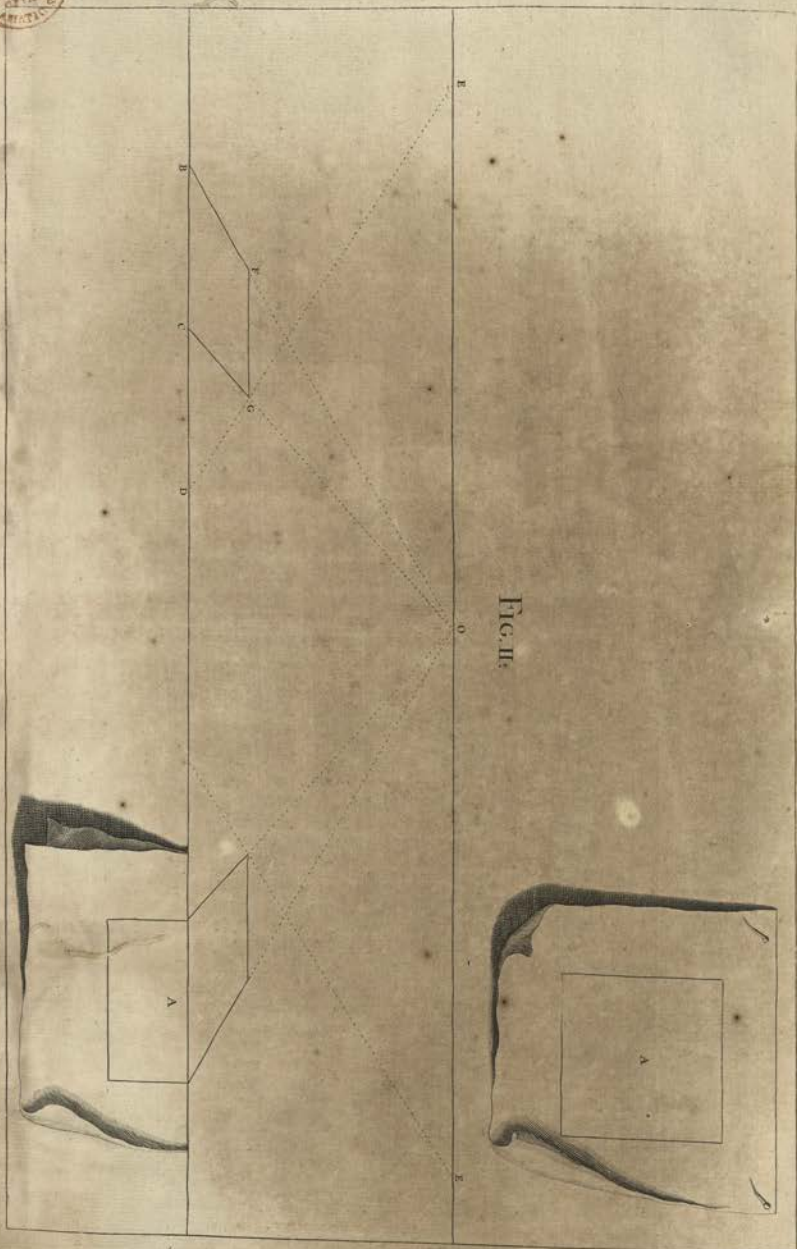


FIGURA Secunda.

Modus delineandi optice
Quadratum.

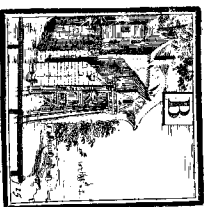


NTE descriptionem opticam quadrati A, quod fingimus delineatum esse in papyro separati, tunc de sunt due linee parallele; altera plani, altera horizonis, ut jam docuimus; notando in linea horizonis punctum oculi O, & punctum distantie E. Tum transferti in lineam plani latitudine ac longitudine ipsius quadrati A, in lineam CB sit equalis latitudini, & DC sit equalis longitudini. Ex punctis B & C sunt visuales BO, CO ad punctum oculi; ex puncto D sit recta DE ad punctum distantie. Denum, ubi visualem CO secat recta DE, sit GF parallela ad CB; habesque quadratum optice contractum.

Compendium temporis & laboris facies, praesertim in schematibus quae abundant lineis, se charitulum in medio complecteris, eademque utaris, ut latitudinem ac longitudinem quadrati transferas in lineam plani.

The Second FIGURE.

The Manner of delineating a Square in Perspective.



EFOR E the Square A, which is suppos'd to be drawn on a separate Paper, can be laid down in Perspective, two parallel Lines must be drawn; one of the Plan, the other of the Horizon, as is already intimated; noting in the Horizontal Line the Point of Sight O, and the Point of Distance E. Then, when the Length and Breadth of the Square A shall be transferr'd into the Line of the Plan, so that the Line CB be equal to the Breadth, and DC be equal to the Length, let the visual Lines BO, CO be drawn from the Points B and C to the Point of Sight O, and the right Line DE from the Point D to the Point of Distance. Lastly, where the Line DE cuts the Visual CO, make GF parallel to CB: and you have the Square Optically contracted, or fore-shorten'd in Perspective.

To spare Time and Pains, especially in Figures that abound in Lines, fold your Paper in the middle, and make use of it to transfer the Breadth and Length of the Square, into the Line of the Plan.

FIGURA Tertia.

Optica delineatio rectanguli, altera parte longioris.

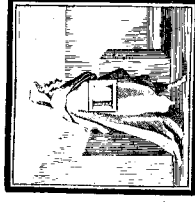


Aitudo BC rectanguli A positur in linea plani, adhibito circino, vel chartulâ complicatâ; & ex punctis B & C fiant visuales ad O, punctum perspective. Tum papyro ex altera parte iterum complicatâ, notetur longitudo CD rectanguli; ducendo tum rectam DE ad punctum distantie, tum rectam FG parallelam ad BC, que complebit opticam delineationem rectanguli.

Altera figura ostendit complicationem cruciformem papyri, que adhiberi potest in delineandis rectangulis, seu latitudo eorum sit major longitudine, aut vice versâ; seu latitudo & longitudo sint æquales.

The Third FIGURE.

The Delineation of an Oblong Square in Perspective.



ET the Breadth BC of the Square A, be plac'd in the Line of the Plan, by the Compass, or a folded Paper, and from the Points B and C, make the Visuals to the Point of Sight O. Then fold your Paper cross-wise, and mark CD the Length of the Square, drawing the Line DE to the Point of Distance, and the Line FG parallel to BC, which will complete the Optick Delineation of the oblong Square.

The other Figure shews the Folding of the Paper cross-wise, which is of ready use in delineating Squares, whose Breadth exceeds their Length, or *vice versâ*; or whose Length and Breadth are equal.

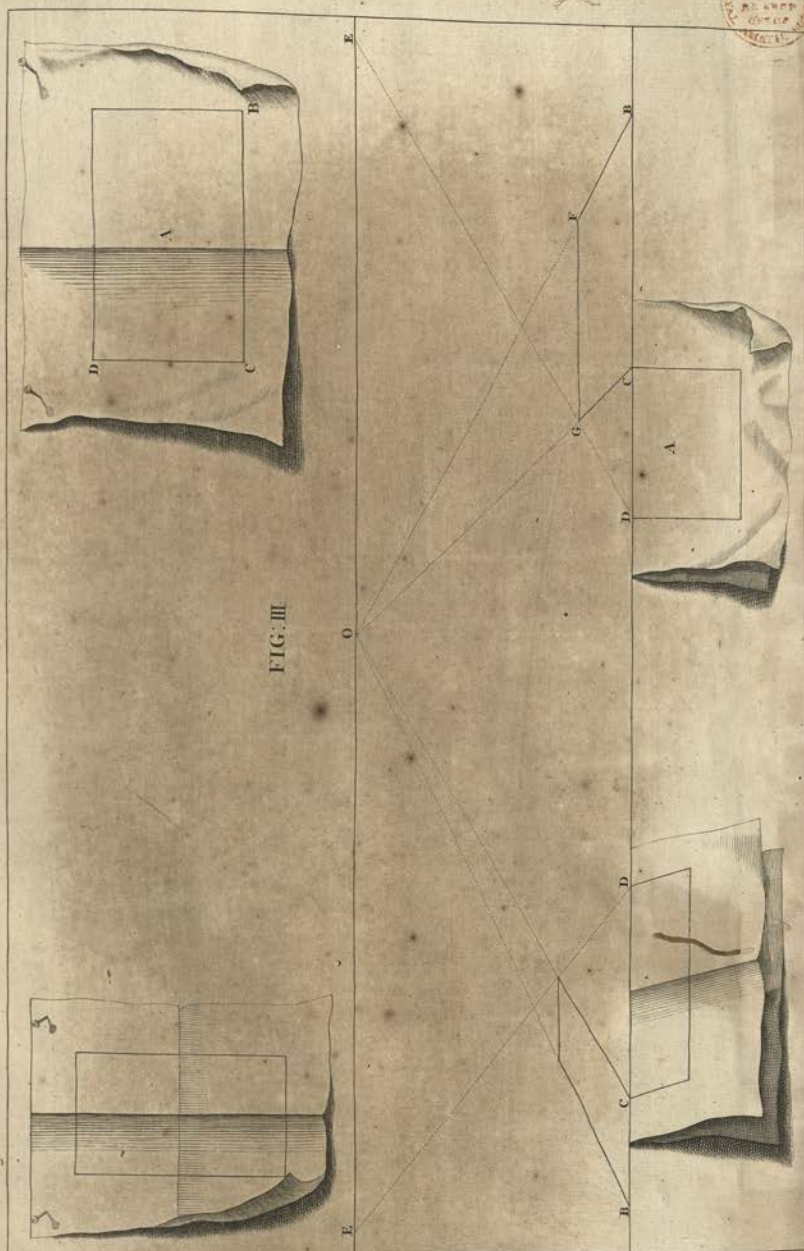


FIG. III

OFFICE
TUESDAY
FRANCE
OFFICE
MATIC

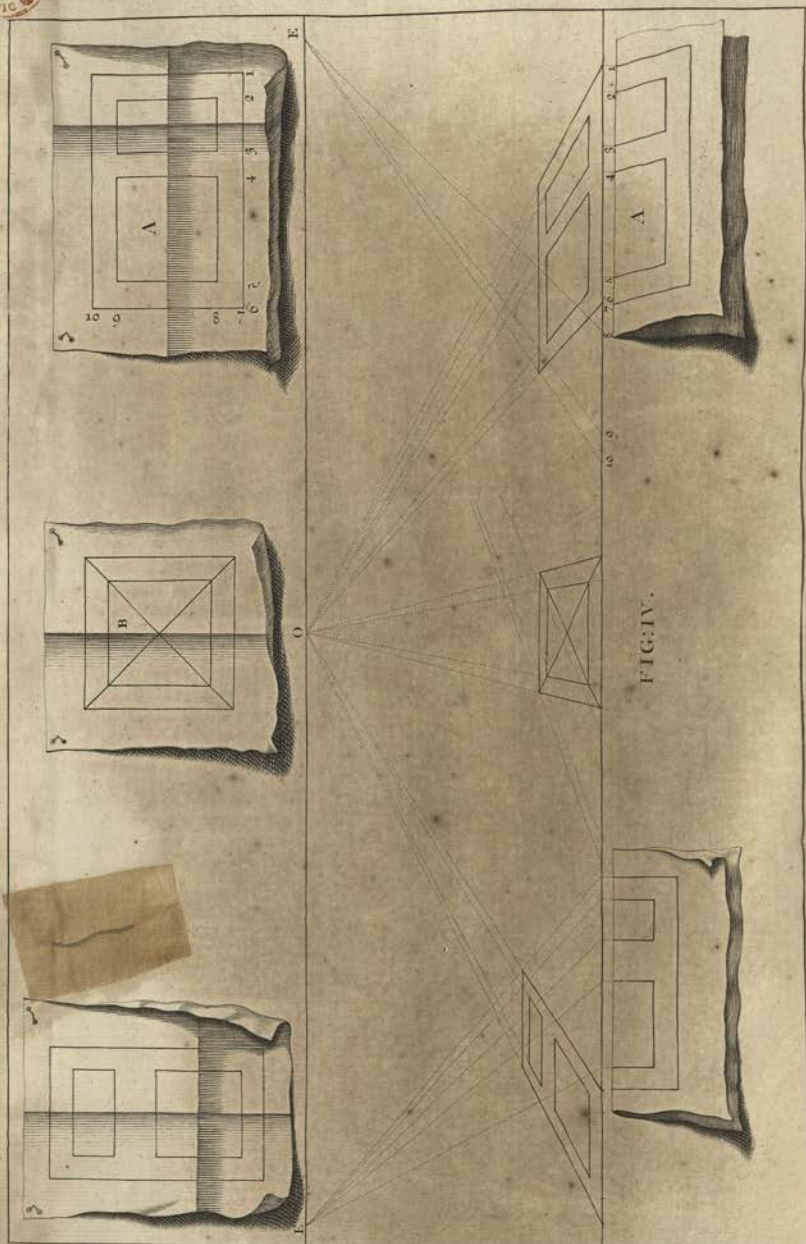


FIGURA Quarta.

Optica descriptio Quadrati duplicis.

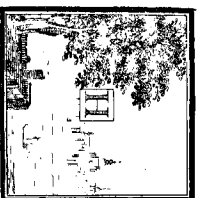


*AM incipies frui compendio
papyri complicate. Nam
eam admovento linee plani,
nullo negotio notare poteris
puncta 1, 2, 3, 4, 5, 6, li-
nearum visualium, quæ du-
centur ad O punctum perspectivæ. Exinde
complicatâ rursus chartulâ in crucem ad P,
notabuntur hæc puncta 7, 8, 9, 10; 7, coinci-
dens cum puncto 6, nisi quadratum difset à li-
nea plani. Ductis autem rectis ex 8, 9, 10,
ad punctum E, ubi secant visualem 6, 7, fient
parallelae, eritque completa delineatio.*

*In medio quadrati B, aliud quadratum fa-
cile describetur, ducendo diagonales seu dia-
metros ab angulo ad angulum, ut in figura.*

The Fourth FIGURE.

The Optical Delineation of a double Square.



HERE you'll find the Advan-
tage of your folded Paper;
for, applying it to the Line
of the Plan, you readily
mark the Points 1, 2, 3, 4,
5, 6, of the visual Lines,
which must be drawn to the point of Sight
O. Then folding the Paper cross-wise, as
in P, you mark the Points 7, 8, 9, 10, pla-
cing the Point 7 on that of 6, unless you
would have the Square remov'd within the
Line of the Plan. Then from 8, 9, 10,
drawing Lines to the Point of Distance E;
where they intersect the Line 6, 7, draw
parallels to the Line of the Plan; and
your Work is done.

Within the Square B, you may easily
inscribe another Square by help of the Di-
agonals; as may be seen in the Figure.

FIGURA Quinta.

Vestigia quadratorum, cum elevationibus.



UT POSSIT is quæ jam diximus de Con-
tractione optica Quadratorum, notandum est,
vestigium primi Quadrati distare à linea plani
spatio BA optice contracto; quia linea BD
habet à verticali AO, distantiam BA. Eodem
modo Quadratum secundum distat à linea plani
spatio EA, &c. sic deinceps.

 ¹³ Velim obferves, in omnibus his Quadratis
lineas longitudinis esse partes visuales, lineas vero latitudinis esse par-
rallelas lineæ plani, & in primo quadrato duci ex punctis, in quibus lineæ
BD, CD, tendentes ad punctum distantie, secant visuales AO.

Sub singulis quæstionibus Quadratorum, delineavimus illa omnino smilita, per quæ parvo labore fient tres bases, erigendo ad libitum duas primas perpendiculares æquales; ac ducentes tum duas visuales ad punctum oculi O, tum reliquas, ut in figura. Supponendum est autem, geometricam altitudinem quælibet rei desinere ex lineis normalibus ad lineam plani; quemadmodum latitudo & longitudo geometrica desumuntur ex eadem linea plani.

Tres alie bases inferiores formantur sine lineis oculitis ex vestigio & ex elevatione longitudinis optice deformatis, addibendo solas altitudines ac latitudines angulorum. Nominē altitudinis intelligimus distantiam cuspide latenti anguli a linea plani; nominē latitudinis intelligimus distantiam anguli ab una aliqua linea normali ad lineam plani; dummodo hæ normales eandem habeant positionem respectu basium, & respectu vestigiorum & elevationum. Quæmadmodum autem per concertum altitudinis FG, & latitudinis HI, opè duorum circinorum invenitur unus angulus in una basi; ita inveniantur ceteri tum in ea, tum in reliquis.

The Fifth Figure.

Plans of Squares, with their Elevations.



ESIDES what has been already said of the fore-shortning of Squares in Perspective, it is convenient to observe, That the Foot of the first Square is here set within the Line of the Plan, as much as the Space BA optically contracted, because the Line BD has the Distance BA from the Visual AO: And in like manner, the second Square is distant from the Line of the Plan the Space EA: and so for the rest.

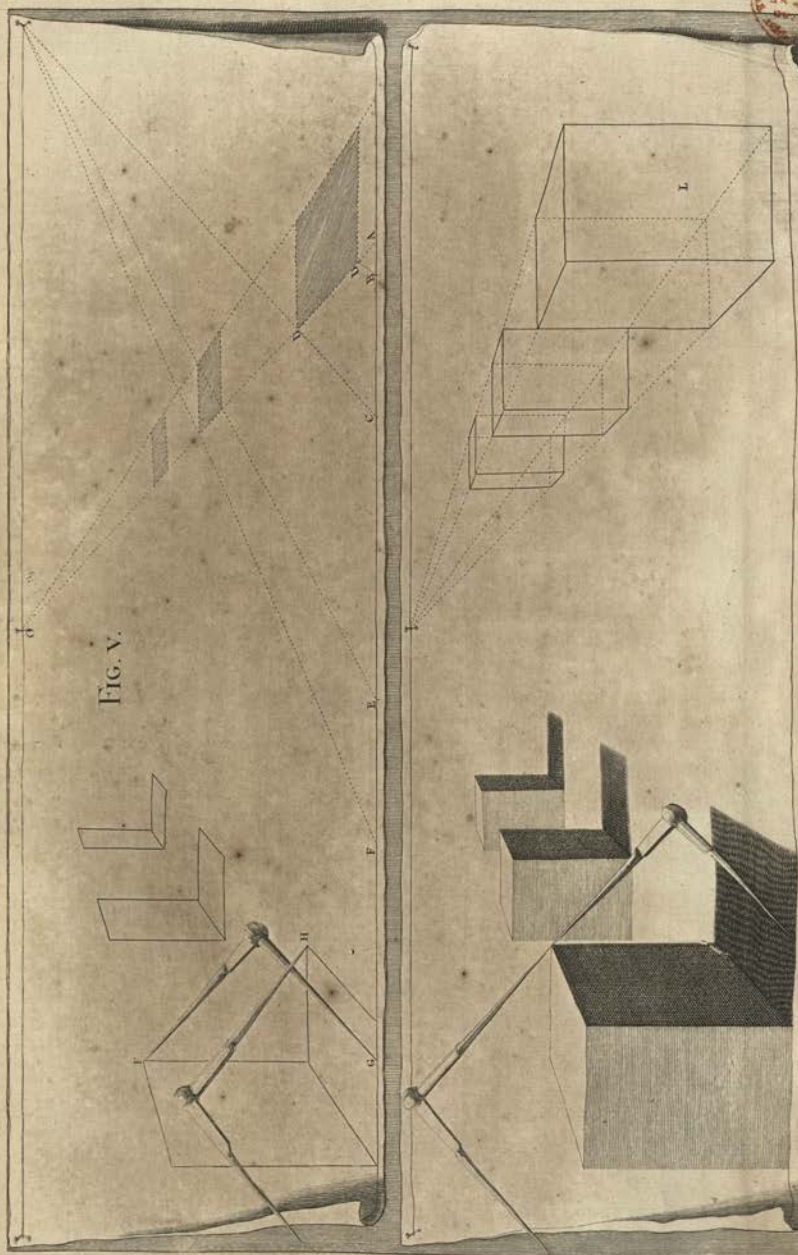
I would have you observe in all these Squares, That by the *Length* *Y* always understand part of the *Visual* Lines, and by the *Breadth* whole parallel to the Ground-line; which in the first Square are drawn from the Points in which the Lines *BD*, *CD*, tending to the Point of Distance, intersect the *Visual* *AO*.

Under the Plans of the Squares are describ'd three others juſt like them, which are eaſily converted into three Bales, by erecting, at pleaſure, the two firſt Perpendiculars of equal Height, and thence drawing two Viſuals to the Point of Sight O, which alſo bound the reſt, as in the Figure. Obſerve alſo, That the Geometrical Height of every thing is to be let perpendicularly from the Ground-line, or Line of the Plan, as the Geometrical Length and Breadth are alſo plac'd on the ſame Line.

The three other Bases below are form'd without the help of Occult Lines, by making use only of the Heights and Breadths of the Angles, taken from the Perspective Plan and Upright. By *Height* I understand the Distance of each Angle, or Corner, from the Ground-line: By *Breadth*, the Distance of an Angle, or Corner, from any Line perpendicular to the Ground-line; provided these Lines have always the same Place in respect of the Bases, as they have in respect of the Perspective Plan and Upright. And as, by the help of two Compasses, the Height FG, and the Breadth HI determine the Corner of the first Base; so, in like manner, are found the Corners of the other Bases.



FIG. V.



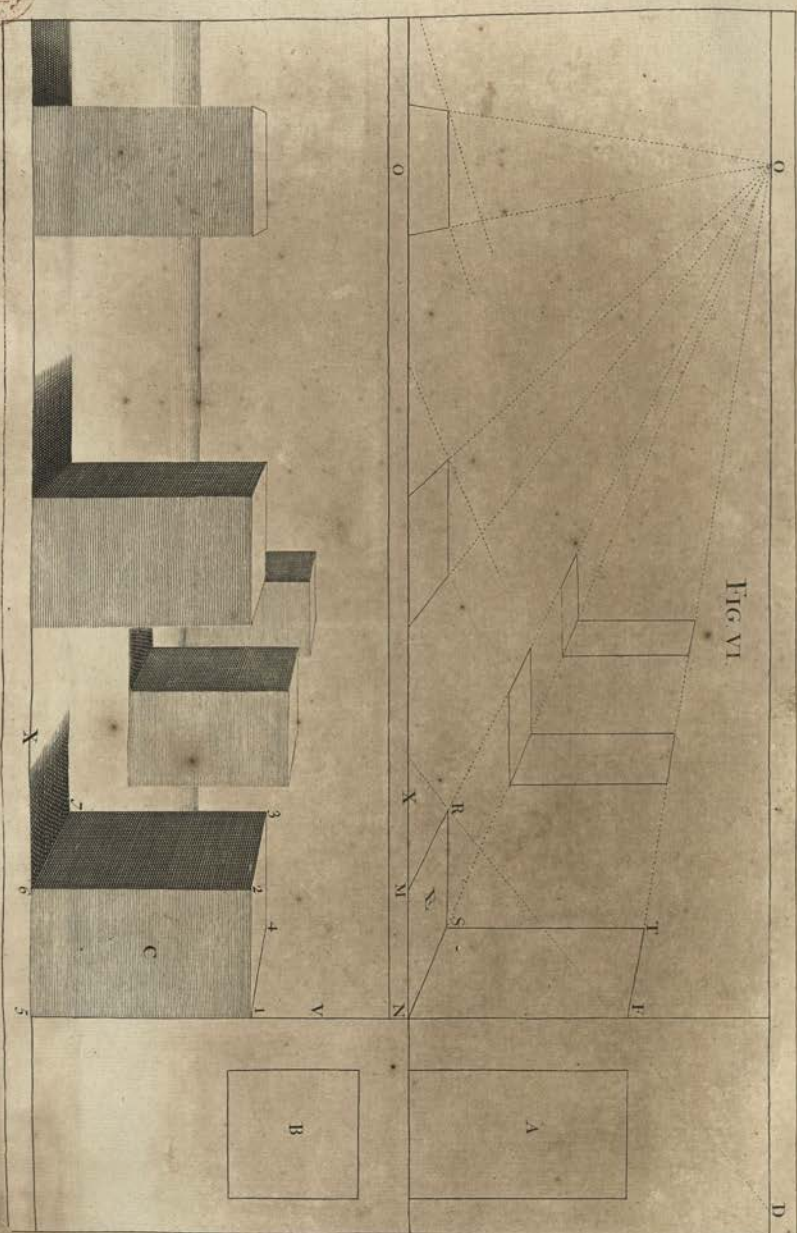
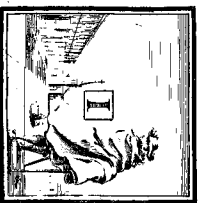


FIGURA Sexta.

Modus opticae delineationis, absque lineis

occultis.

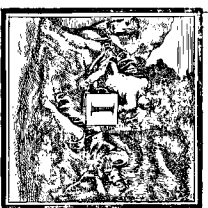


N hac Figura sexta, vestigium geometricum *B* seorsum posui ab elevatione geometrica *A*, ut deinceps faciemus. Vestigium *B* optice contractum in *E* est *N M R S*; elevatio contracta longitudinalis vestigii est *F T S N*. Posito autem

quod altitudines *F N*, 1, 5, 2, 6, sint aequales; latitudines *N M*, 1, 2, 5, 6, sint aequales; $\angle$ rectae *N M*, 5, 6, sint in linea *X* plani; rectae *F N*, 1, 5, sint in perpendicularo *V*: anguli 3 $\angle$ 4 basii *C* habent eandem elevationem seu distantiam à linea *X* plani, quam habet angulus *T*: anguli 1 $\angle$ 2 habent elevationem, quam angulus *F*: anguli 3 $\angle$ 7 habent eandem latitudinem seu distantiam à perpendicularo *V*, quam habet angulus *R*: anguli 2 $\angle$ 6 habent eandem latitudinem, quam habet angulus *M*.

The Sixth FIGURE.

The manner of designing in Perspective, without occult Lines.



N this sixth Figure I have design'd the Geometrical Plan *B* separately from the Geometrical Elevation *A*, as I shall always do hereafter. The Plan *B* optically contracted, or put in Perspective, in *E*, as *N M R S*; the Elevation of its Length in Perspective in *F T S N*. Then supposing the Heights *F N*, 1, 5, 2, 6, equal; and the Breadths *N M*, 1, 2, 5, 6, equal; the Lines *N M*, 5, 6, to be in the Line of the Plan *X*; and the Lines *F N*, 1, 5, in the Perpendicular *V*: the Angles 3 and 4 of the Base *C* have the very same Elevation or Distance from the Line of the Plan *X*, as has the Angle *T*: the Angles 1 and 2 have the same Elevation with the Angle *F*: the Angles 3 and 7 have the same Breadth or Distance from the Perpendicular *V*, as the Angle *R* has: the Angles 2 and 6 have the same Breadth, as the Angle *M* has.

FIGURA Septima.

Aliud exemplum vestigij geometrici, cum elevatione longitudinis.



I delineanda sit basis dissecta in quatuor partes, fiat vestigium A cum suis divisionibus longitudinis E D & latitudinis C D. Easdem vero divisiones longitudinis habebit in E F elevato B quæ pertingit usque ad X. Porro ad contractionem opticam vestigij adhibebitur papyrus complicata in latum & in longum, transferendo in lineam plani latitudinem & longitudinem vestigij. Deinde nullo negotio fiet optica deformatio elevationis, ut clarè positum est in figura. Quomodo autem ex vestigio & elevatione longitudinis optice imminutis eruatur basis nitida sine lineis occultis, ex præcedentibus manifestum est. Optarem ut per assiduum circini tractionem in hac methodo exercenda operam sedulo ponas; quum ex ea pendeat omnis facilitas delineationum opticarum.

The seventh FIGURE.

Another Example of a Geometrical Plan and Upright, put in Perspective.



OR drawing in Perspective a Pedestal, or Base, divided into four Parts, make the Plan A, with its Divisions of Length ED, and of Breadth CD; and the same Divisions of Breadth E F, in the Elevation B, prolong'd to X. Then make the Perspective-

Plan, by transferring the Breadth and Length into the Ground-line, by means of your Paper folded cross-wise: From which Plan the Perspective Upright is very easily made, as may be plainly seen in the Figure. How the Base below, without occult Lines, is made from the Perspective-Plan and Upright, is manifest from what has been said before. I could wish you would be very diligent in the Practice of this Method by the Compass; because the Dispatch of Perspective Delineations chiefly depends thereon.

1774
MAY 24
1774

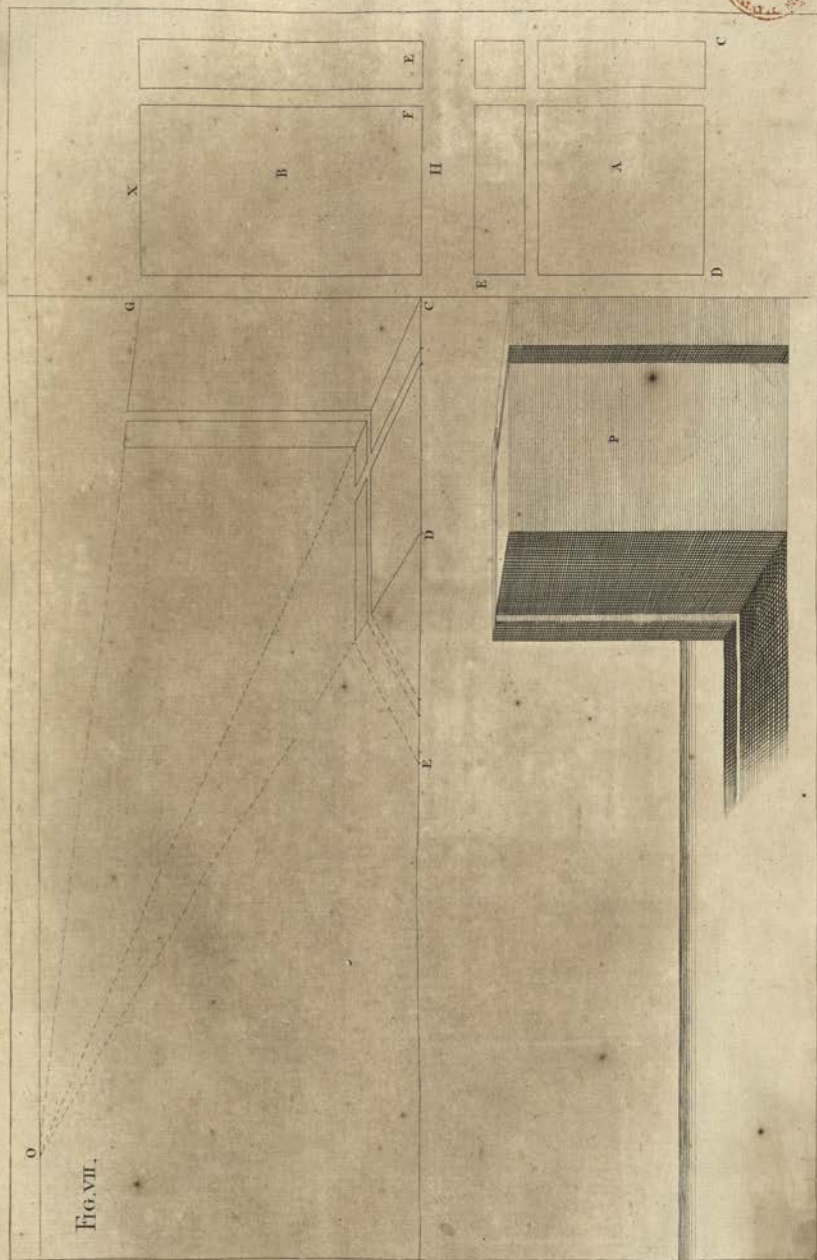


FIG. 8.

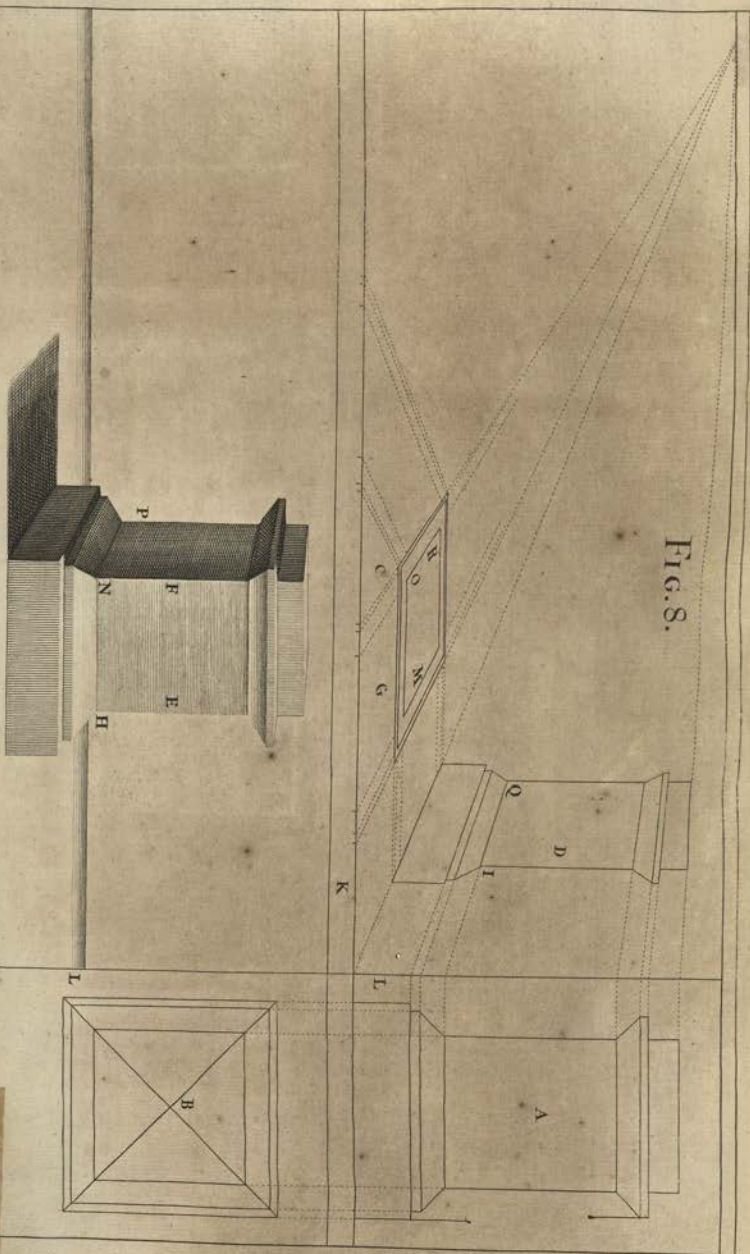


FIGURA OCTAVA.

Optica projectio stylobatæ.



I libitum fuerit delineare stylobatam, cum projecturis in summo $\mathcal{E}$ imo, incipies ab elevatione geometrica A, ducendo occultas ad id necessarias, tum versus perpendicularem L, tum deorsum pro vestigio geometrico B, cuius distantie transferentur in spatium G. Si mensuræ longitudinis differunt spatio C à mensuris latitudinis, vestigium deformatum videbitur distare à linea K plani, quantum est idem spatium C. In consuetanda optica elevatione D, visuales ex punctis lineæ L dabunt lineas latitudinis; lineas vero altitudinis accipies ex lineis vestigi contrahiti, ut in figura. In formando stylobatâ nitido EF, locum anguli H dabit concursus latitudinis ex linea L usque ad M, $\mathcal{E}$ altitudinis ex linea K usque ad I. Concursus tum ejusdem altitudinis, tum latitudinis ex L usque ad O, dabit angulum N. Demum altitudinem anguli P accipies ex K usque ad Q; latitudinem ex L usque ad R.

The Eighth Figure.

The Projection of a Pedestal in Perspective.



F you would draw a Pedestal, with the Projection of its Cap and Base, you must begin with the Geometrical Elevation A, by drawing such occult Lines as are necessary, as well side ways to the Perpendicular L, as downwards for making the Geometrical Plan B, whose Distances must be transferr'd, and carry'd into the Space G. If the Measures of the Length be placed the Distance of the Space C, from those of the Breadth, the Perspective Plan will then appear removed within the Ground-line K, as much as the said Space C is. In the Construction of the Perspective Elevation D, the Visuales drawn from the Points of the Line L, give the Lines of the Breadth; and those of the Height are taken from the Lines of the Perspective-Plan as in the Figure. In delineating the clean or finish'd Pedestal EF, the Intersection of the Breadth from L to M, with the Height from K to I, gives the precise Place of the Corner H. The Intersection of the same Height with the Breadth L O, gives the Angle N. Lastly, the Angle P is found by the Intersection of the Height K Q, with that of the Breadth I R.

FIGURA NONA.

Optica delineatio Architecturæ Jacobi Barozzii; & primum, de Scylabata Ordinis ETRUSCOL.

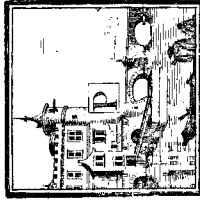


ERSPECTIVA nusquam clariùs emicat, quàm in Architectura. Ictico tibi ob oculos pono Architecturam Jacobi Barozzii, quem à patria nuncupant Il Vignola, reliquis fortasse iustitiorum; in eaque continetur elevatio geometrica singulorum quinque Ordinum, qui vocantur, Etruscus, Doricus, Ionicus, Corinthius, & Romanus vel Compositus; delineando seorsim partes cujusque Ordinis in figuris grandioribus. Elevationi geometricæ suum vestigium nos addemus; ex vestigio autem & ex elevatione optice deformatis, eliciemus apparentius solidorum juxta regulam traditam. Exempli gratia, si delineare velis scylabatum quadratum & pilam Ordinis Etrusci, præter elevationem geometricam A delineare oportet vestigium geometricum B, ex ambobus autem optice contractis formatur scylabata nitidus D, cum antea & pila existente ad latus, accipiendo altitudines à linea plani, latitudines à linea perpendiculari ad ipsam planum. In alia delineatione posuimus pilam ex adverso, ut eis omni modo delineandis assuecas.

Ad vitandam confusionem linearum, proderit ut figuree sunt his nostris multò grandiores: in quem finem singulis paginis apposita est scala modulorum. Hoc nomine intelliguntur partes æquales, in quas dividuntur lineæ latitudinis & altitudinis elevationum geometricarum; ac lineæ latitudinis & longitudinis vestigiorum geometricorum. Si moduli sint parvi, subdividuntur singuli in duodecim partes; ac prout fuerint grandiores, subdividuntur in partes triginta, vel sexaginta, vel centumviginti. Modulos Etruscum Doricumque in partes duodecim; reliquos autem in octodecim partiti sunt.

The Ninth Figure.

The Architecture of Vignola in Perspective; and first, of his Pedestal of the TUSCAN Order.



ERSPECTIVE never appears more graceful, than in Architecture; for which Reason I present you with that of James Barozzi, from his Country generally call'd Vignola; which perhaps is more in use than any other; and contains the Geometrical Upright of each of the five Orders, viz. the Tuscan, Dorick, Ionick, Corinthian, and the Roman or Composite; together with a separate Delineation of the Parts of each Order, in larger Figures. To this Geometrical Elevation we shall add the Plan, and, from both of them reduc'd into Perspective, shall draw the Appearances of Solids, according to the Rule before laid down. For Example: If you would draw the square Tuscan Pedestal and its Pilaster, you must, from the Geometrical Elevation A, make the Geometrical Plan B; and from both of them reduc'd in Perspective, draw the fifth d Pedestal D, with that of its Pilaster on the Side, by taking the Heights from the Ground-line, and the Breadths from a Line perpendicular to the same. On the other Side we have plac'd the Pilaster on the Back-part, that you may practise the Drawing them in any manner.

For avoiding the Confusion of Lines, I advise you to make the Figures as much larger than ours as you can; for which purpose, there is annex'd a Scale of Modules to each Figure. By this Name we understand the equal Parts, into which, the Lines of the Breadth and Height of the Geometrical Uprights, and of the Breadth and Length of the Geometrical Plans, are divided. If the Modules are small, they are subdivided into twelve Parts; and according as they are larger, into thirty, sixty, or an hundred and twenty Parts. I have divided the Tuscan and Dorick Module into twelve Parts, and that of the other Orders into eighteen.

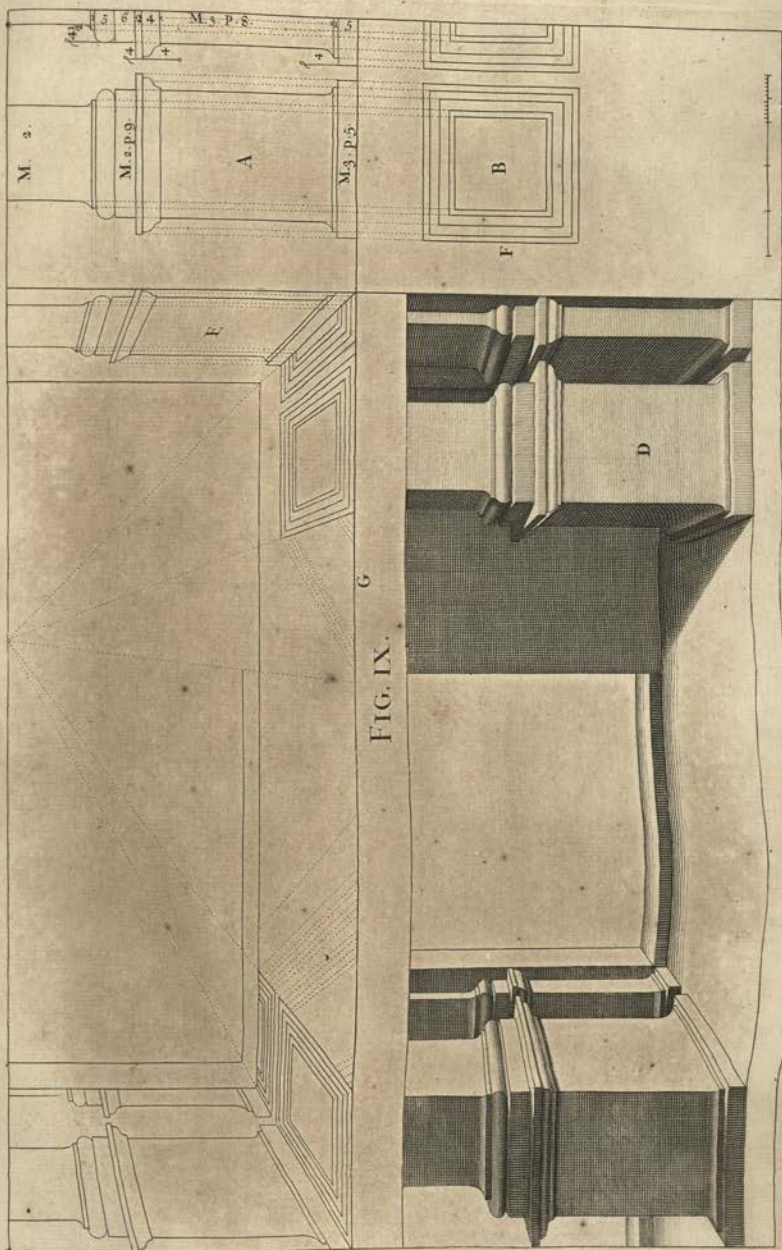


Fig. 10.

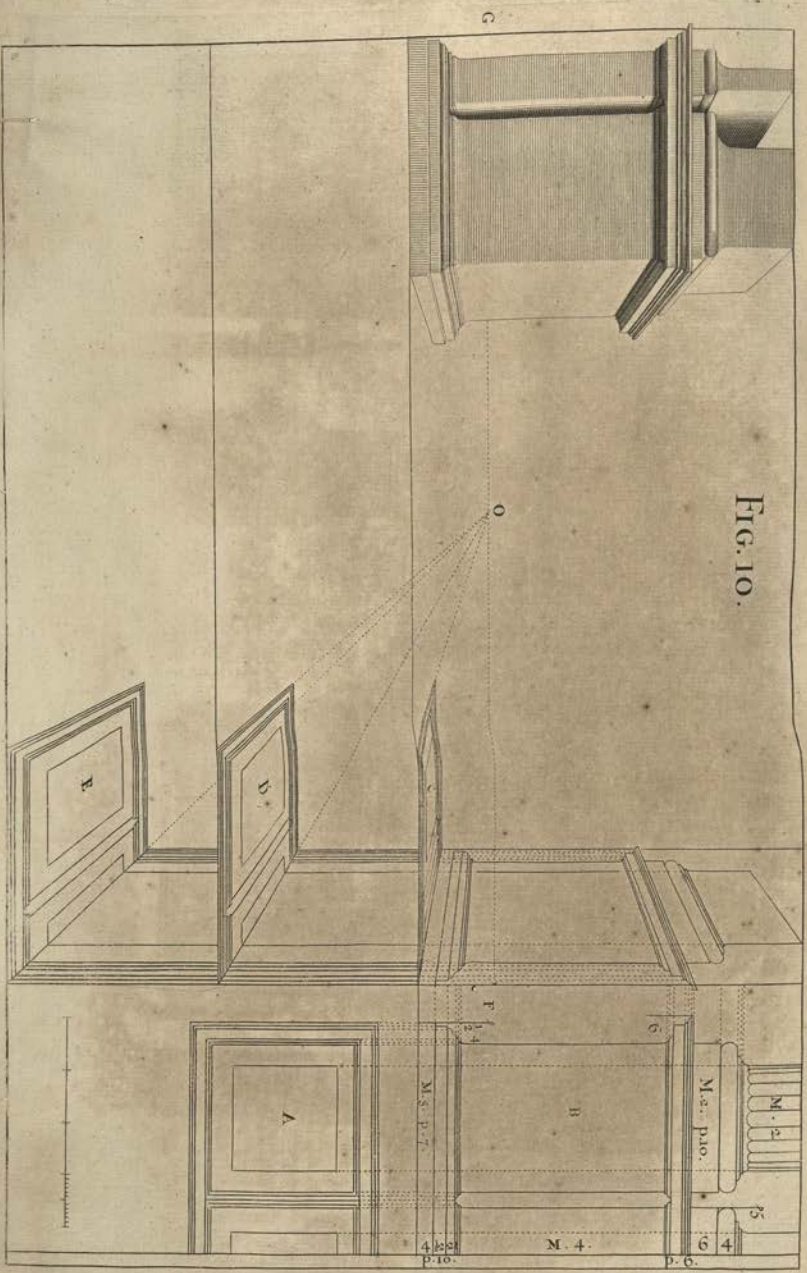


FIGURA DECIMA.

Optica deformatio Stylobatæ DORICI; ubi de modo vivandi confusionem, in vestigiis delineandis.



LEVATIO geometrica B Stylobatæ Dorici continet eandem symmetriam partium quæ habetur apud Barozzium; ex eoque eruitur vestigium geometricum A per lineas oculis, quæ descendunt ex punctis terminatis præcipuarum projecturarum. Earundem projecturarum distantie transferendæ sunt in lineam elevationis, notando puncta quæ necessaria sunt ad deformandam elevationem longitudinis Stylobatæ.

Si ob propinquitatem lineæ plani ad lineam horizontis, vestigium evadat confusum, sunt in distantia congrua sub linea plani alæ lineæ planorum ipsæ parallelæ, cum suis vestigiis. Quid autem emolumentum offerat distantia major præ minori, ostendit vestigium E distinctius vestigio D. Singula hæc vestigia sunt notando in linea cuiuslibet plani mensuras latitudinis & longitudinis vestigii A, & ducendo lineas ad eandem puncta oculi ac distantia.

Stylobatam nitidum descripsimus ex parte G, tum ex necessitate, tum ut videtur, pro distantia FO, usurpandam esse distantiam GO penitus æqualem.

The Tenth Figure.

A DORICK Pedestal in Perspective; with the Manner of avoiding Confusion, in designing the Plans.



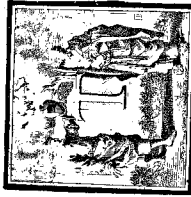
THE Geometrical Elevation B has the same Members and Proportions, as the Dorick Pedestal of Vignola; and the Geometrical Plan A is form'd, by letting fall occult Lines from the principal Projectures of the Upright. Occult Lines are also to be continued to the Perpendicular F, from the several Members requisite for elevating in Perspective the Length of the Pedestal.

When, by reason of the too near Approach of the Ground-line to that of the Horizon, the Plan becomes thereby confus'd; draw at a convenient Distance underneath, other Ground-lines parallel to the first, together with the Plans in Perspective. And of what Advantage the Removal of the Ground-line is, is evident from the Plan E, which is much more distinct than the Plan D. Each of these Plans is made, by marking upon its respective Ground-line the Measures of the Breadth and Length of the Plan A, and by drawing Lines to the same Points of Sight and Distance, which were first assign'd.

We have plac'd the finish'd Pedestal on the Side G, partly for want of Room, and partly to shew, that the Point of Distance G is there made use of, GO being equal to FO.

FIGURA Undecima.

Stylobatæ IONICI deformatio ; ubi de vitanda confusione in elevationibus.

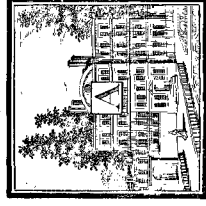


U M in Figura precedenti, tum rursus in hac, ostendimus quid agendum sit ubi vestigia A A nimium obliquantur, unde oritur confusio; præcipue in lineis parallelis que exhibent latitudines. Non minor difficultas interdum occurrit in elevationibus longitudinis optice deformatis; quod videlicet, ob nimiam earum obliquitatem, periculum non sit altitudines singularum projecturarum probe discernere ac designare. Ad scopulos istos declinandos, loco elevationis B adhibebitur elevatio C, que distinctior est, tum illa, tum duabus intermediis D & E, ob maiorem distantiam quam habet à puncto oculi.

In delineando stylobata nitido latitudines accipiantur ex ultimo vestigio, ponendo unam cuspidem circini in linea perpendiculari, que proxima est literæ O: altitudines accipiantur ex elevatione C, ponendo unam cuspidem circini in linea plani, ut in precedentibus ostensum est.

The Eleventh Figure.

The IONICK Pedestal in Perspective, with the Manner of avoiding Confusion in Elevations.



S in the foregoing Figure, so in this also is shewn what is to be done, where the Plans A A lie so oblique, as to cause Confusion; especially in the Parallel-lines which give the Breadths. The like Inconvenience often happens in elevating the Lengths in Perspective; when by their too near Approach to the Point of Sight, the Contour of the several Mouldings can't be distinctly delineated: For avoiding which, instead of B you may make use of the Elevation C, which is not only more distinct than the former, but better than either of the two intermediate ones D or E, by so much as it is more remote from the Point of Sight.

In designing the finish'd Pedestal, the Breadths are taken from the lowest Plan, by setting one Point of the Compasses in the perpendicular Line O L; the Heights are taken from the Elevation C, by placing one Point of the Compasses in the Ground-line, as has been shewn before.

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FIG. XI.

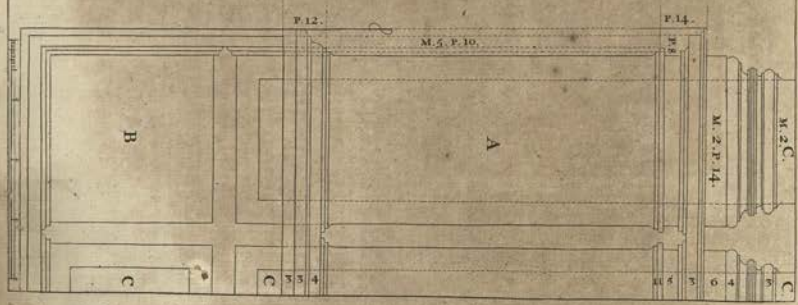
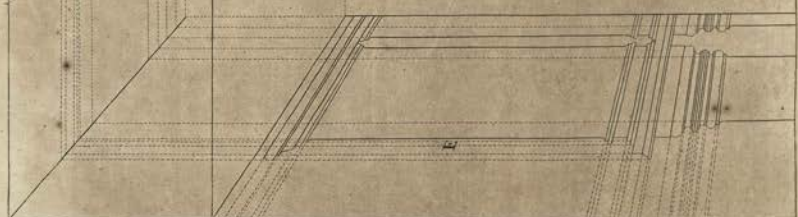
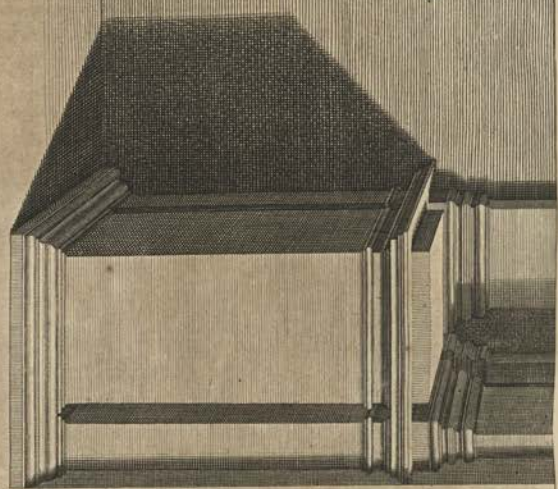


Figura Duodecima.

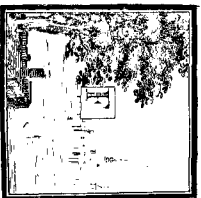
Deformatio stylobate CORINTHII,
cum duabus pilis.



RNATUS gratiâ, stylobate Corinthio additæ sunt pilæ, quæ pone columnas locari solent. Ut autem pilæ clariùs appareant, columna omiſſa eſt, cuius deformandæ rationem nondum tradidimus. Menſuras omnes ex Barozzio acceptas eſſe demonſtrat ipſum ſchema, in quo elevatio geometrica ſtylobate eſt A; veſtigium ejus geometricum eſt B; pile CC. Veſtigium optice contractum eſt D. Elevatio longitudinis ſtylobate optice contracta eſt E, ac methodo conſuetâ ex iis eruetur ſtylobata nitidus cum ſuis pilis.

The Twelfth Figure.

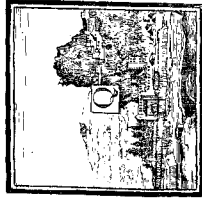
*The CORINTHIAN Pedestal, with
its Pilasters, in Perspective.*



OR Ornament's sake, we have added to this *Corinthian* Pedestal the Pilasters, which are usually placed behind Columns: And that they may be the more perspicuous, have left out the Column, not having yet shewn the Manner of putting it in Perspective. The Scheme shews the Measures are taken from *Vignola*; in which the Geometrical Upright of the Pedestal is A; the Geometrical Plan of the same is B; that of the Pilasters CC. The Plan in Perspective is D, the Elevation in Perspective is E; from which the finish'd Pedestal and Pilasters are drawn by the usual Method.

Figura Decimatertia.

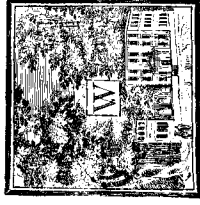
Proiectio stylobatæ, ordinis
Compositi.



*U*UM pagina non caperet
integrum stylobatam tantæ
molis, fingere oportuit de-
tractum illi esse aliquid de
trunco; ac partem supre-
mam stylobatæ sustentari ab infima, non im-
mediatè, sed per quatuor asseres; eisque im-
positam fuisse adjumento funium suspensorum
ex trocblea. Elevatio geometrica stylobatæ
est B; vestigium geometricum est A. Ex his
eruitur optica delineatio vestigii C & eleva-
tionis D: ac postea formatur stylobata niti-
dus E, accipiendo latitudines ex vestigio C,
altitudines ex elevatione D.

The Thirteenth Figure.

*The Projection of a Pedestal, of the Com-
posite Order, in Perspective.*



ANTING Room in this
Page to describe so large a
Pedestal entire, we ima-
gine it to have lost part of
its Trunk, and the upper
part to be set on the lower;
not immediately, but on four Cross-pieces
that intervene; and for placing it thereon,
we suppose the Assistance of Ropes and a
Pulley. The Geometrical Elevation of the
Pedestal is B; its Plan A; from whence
are found their Projections in Perspective
D and C. Then taking the Breadths
from the Plan C, and the Height from the
Elevation D, you complete the finish'd
Pedestal E.

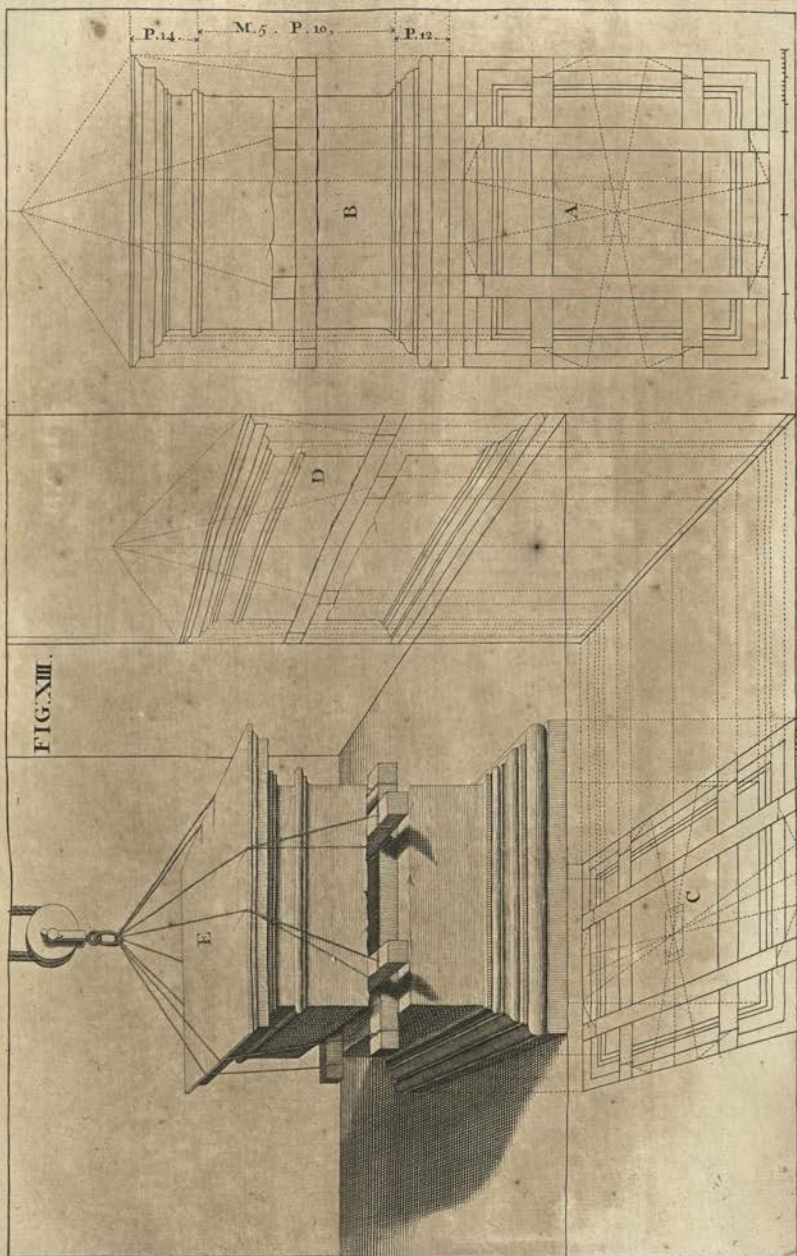


FIG. XIV.

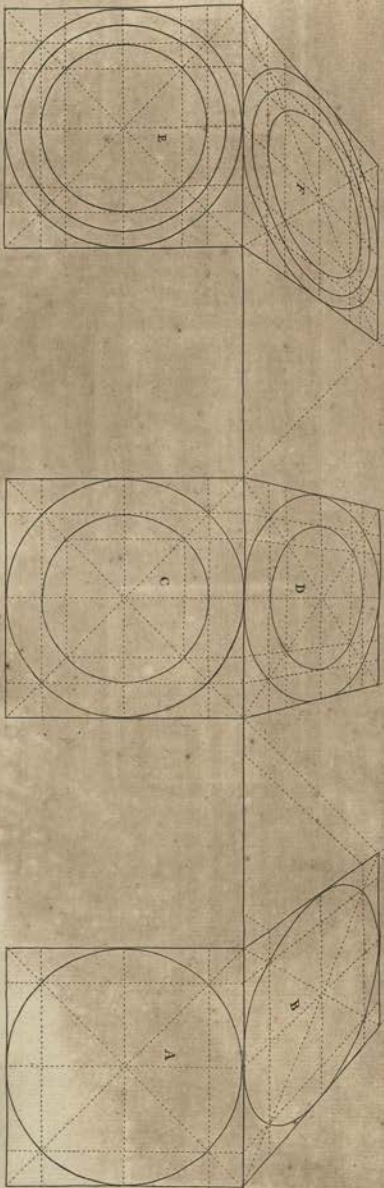
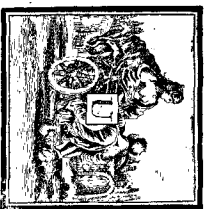


Figura Decimaquarta.

Deformatio Circulorum.



¶ *Apobatis imponere liceat columnas cum suis
bafibus & capitellis, docendus eſt modus qui
ſervandus eſt in projectione optica circulorum,
tum ſingularium, tum duplicium aut multipli-
cium circa idem centrum.*

*Veſtigium geometricum A conſtat quadrato in
quatuor partes æquales diſiſo, cui circulus in-
ſcribitur, additis diagonalibus : & ubi hæ ſe-*

cut circulum, ſunt rectæ parallele ad ſingula latera ipſius quadrati.
*Deinde quadratum cum omnibus diſiſionibus optice immittitur, ac tum
per quatuor puncta ubi tres lineæ rectæ ſe interſecant, tum per quatuor
extrema reliquarum duarum diameterum circuli, ducetur cum venguſate
circumferentia circuli B. Si addere velimus alium circulum, veſtigio
geometrico C inſcribitur aliud quadratum; indeque habebitur optica de-
lineatio duplicis circuli D. Inter hos duos quomodo liceat deſcribere
tertium, per oſto ſeſſiones quadratorum, oſtendunt figuræ E & F. Uno
verbo, circuli deſcribuntur per quadrata, adhibendo ſeſſiones viſumatum
cum parallelis ad lineam plani; ac nullum eſt punctum in quadratis &
circulis A, C, E, cui per ſeſſiones illas nequeant inveniri punctum corre-
ſpondens in quadratis & circulis B, D, F. Nichilominus ubi opus habeas
pluribus circulis, auctor tibi ſum ne multiplices quadrata, plus conſigſionis
allatura tibi quam adjumenti.*

The Fourteenth Figure.

Circles in Perſpective.



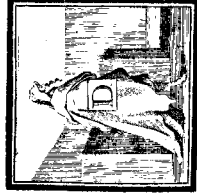
HAT upon Pedetals you may be able to place
Columns with their Baſes and Capitals, it is
requiſite you ſhould know the Manner of put-
ting Circles into Perſpective; whether ſingle,
double, or many concentrick.

The Geometrical Plan A conſiſts of a Square
with a Circle inſcrib'd, whole Diameters di-
vide it into four equal Parts; and the Diago-

nals being drawn where they interſect the Circle, continue Lines parallel
to each Side of the Square. The Square, with all its Diviſions, being put
in Perſpective; by the four extreme Points of the Diameters, and by
thoſe of the Interſection of the Diagonals, you nearly trace by hand the
Circumference B. If you would add another Circle, you muſt inſcribe
another Square, as in the Plan C; from whence you find in Perſpective
the double Circle D. Between theſe two Circles, you may, by the eight
Interſections of the Squares, deſcribe a third, as is evident by the Fi-
gures E and F. In a word, all Circles are deſcribed by the help of Squares,
tracing them by the Interſections of the viſual Lines, with thoſe parallel
to the Ground-line: Nor is there any Point in either the Squares or Cir-
cles A, C, E, whole correſpondent Point may not be readily found by
ſuch Sections, in the reſpective Squares and Circles B, D, F. Neverthe-
leſs, where your Work requires many Circles, I would adviſe you to uſe
as few Squares as poſſible; leſt they perplex, rather than aſſiſt you.

Figura Decimaquinta.

Optica delineario Columnæ.

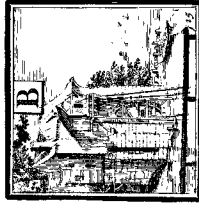


ESCRIPTURI frustum cylindricum I uniforme, fiet elevatio A, & vestigium geometricum B, saltem quoad mediætatem. Ex hoc optice deformato, ut vides in C, ducendæ sunt parallele tum latitudinis ad visualem D, tum elevationis ad visualem E; ex quibus describentur circuli optice contracti F & L, accipiendo latitudines ex vestigio C, altitudines ex perpendiculari M; & juxta hanc methodum circuli F & L sunt sue operæ quadratorum. Denum ducendæ sunt perpendiculares G & H, quæ tangent circulos F & L in punctis terminativis maxime latitudinis.

Nullum est punctum in vestigio C, cui per lineas latitudinis & elevationis nequeat inveniri locus correspondens in circulo F. Exempli gratia; locus puncti 6 est punctum 7. Hunc autem locum habemus per tres lineas, CD, DE, E 7. In delineandis duobus frustis cylindricis, cum summo & imo scapo, eandem regulam servare oportebit.

The Fifteenth Figure.

A Column in Perspective.



EING to describe Part of the Shaft of a Pillar without Projectures, make the Elevation A, and the Geometrical Plan B, at least to the middle: From this brought into Perspective, as you perceive in C, must be drawn Parallels both of Breadth to the Visual D, and of Elevation to the Visual E; from which are describ'd the Circles in Perspective F and L, taking the Breadths from the Plan C, and the Heights from the Perpendicular M: And according to this Method the Circles F and L are made, without the Help of Squares. Lastly, draw the Perpendiculars G and H, by the Points which terminate the greatest Breadth of the Circles F and L.

There is not a Point in the Plan C, but what, by means of the Lines of Breadth and Elevation, may be found in the Circle F. For Instance, the Place of the Point 6 is 7, which is found by the three Lines CD, DE, E 7.

In designing the two Pieces of a Pillar, with the Projecture of the Fillet at Head and Foot, you must observe the very same Rule.

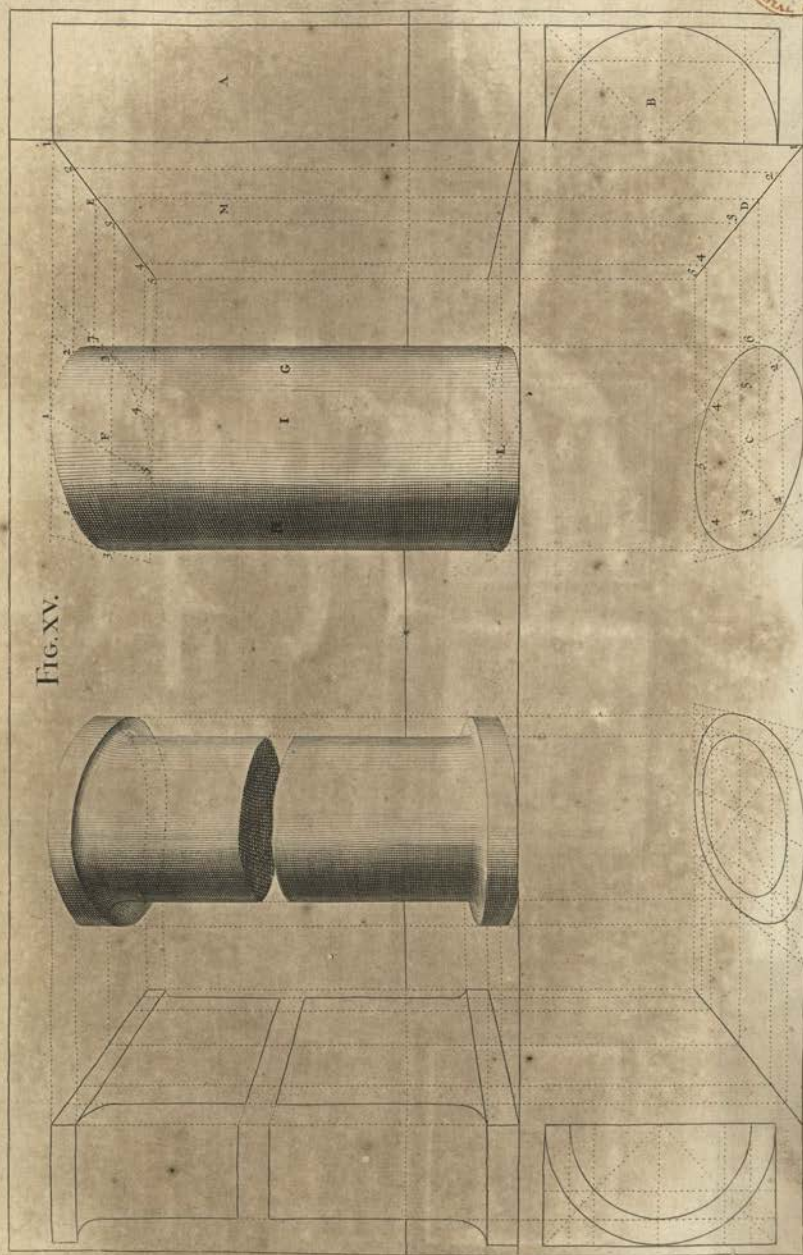


FIG. XVI.

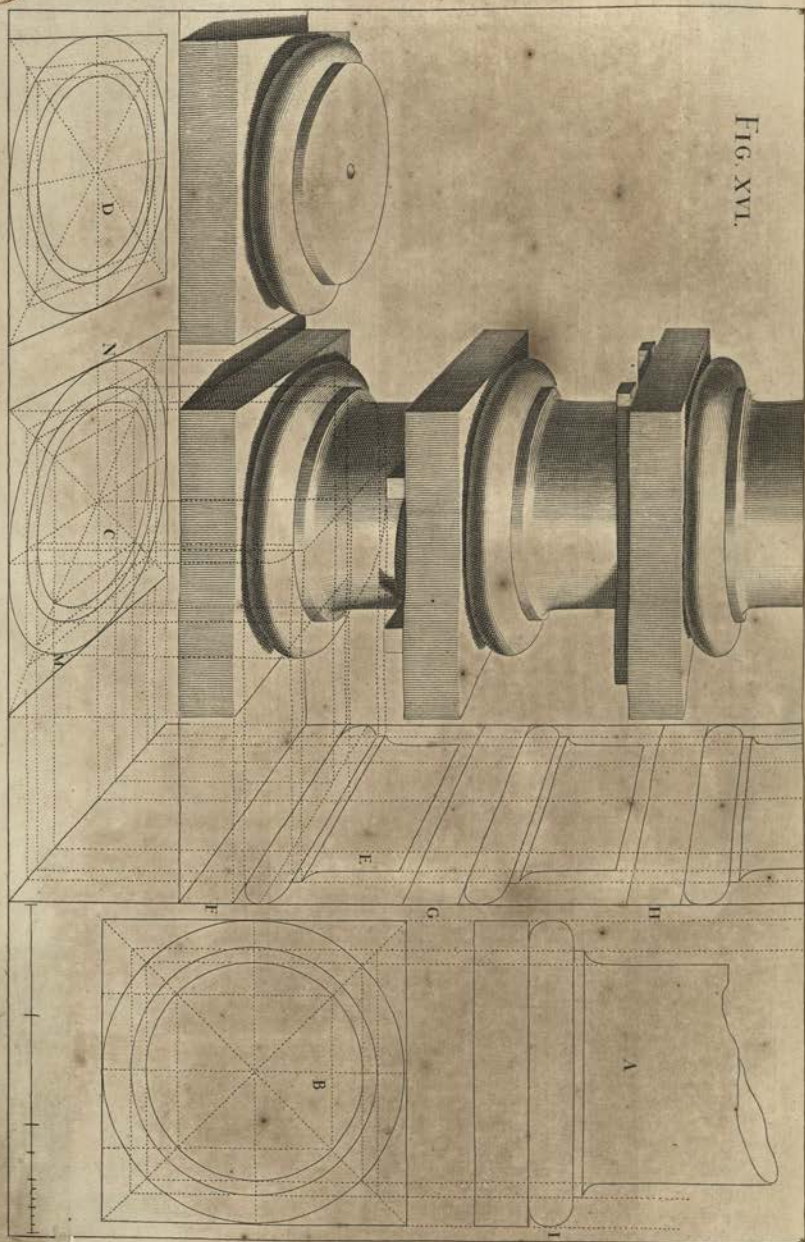


Figura Decimalextra.

Optica projectio bafis ETRUSCÆ.



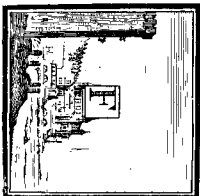
X elevatione geometrica A eritior veltigum B. Hec autem deformato in C & D, ex circuli veltigum C habentur latitudines columnæ, quæ a, ac triphylis bafis: & eodem modo ex veltigio D habentur latitudines quadre ac tori ultime bafis. Ex maximis latitudinibus circulorum veltigii C eritiorum perpendicularares ad partes quæ typis respondent in bafis; ut æquofas quædam fuit puncta maxime latitudinis in eisdem partibus. Hæc puncta (quæ in circulo maximo veltigii C fuit M & N) invenientur tangendo circumferentiam uniuscuiusque circuli reguli parallelæ ad lineam perpendiculararem E. Nam si figura exaltè directæ fuerit, regula tanget singulos toros trium bafium in punctis maxime binae mde latitudinis.

Magis laborandum erit in repentiendis altitudinibus quatuor bafium. Porro si fædulo infpectorum deformatio elevationis F, altitumque diamum, (quæ factæ sunt, notatis in linea perpendiculari: E divisionibus defcriptis ex elevatione geometrica A) confiliet, nullum effe punctum in circulis veltigii C, cui nequiat inveniri punctum correspondens in toro & quadre typis bafis, ut nequiat inveniri quæ incipiant ex M & N. Porro quilibet ex veltigio C pervenit ad lineam ultimam latitudinis ex elevatione F ad bafim. Porro ex figura confiliet, superiorem fuperiorem quadre fubditi oculis ad elevationem F, & cum tori quodæcunque confpicerent, abfcondi à quadra. & aliqd ex parte polita punctis maxime latitudinis retrofiam flectitur, eouique directanda efl, quod tunc inde occurrat quadre typum cooperient. Præclarè autem finqua membra tunc exaltè delineant, quæ effent diaphana; ut partes oculis imperite, omnino colerant cum partibus quæ typis confpiceant.

Completa delineatione, si figuram tuam ex perpendiculari puncti oculi ex debita distantia contemplatus fueris, omnes defectus facile deteges, & planis corriges. Præcipuum diligentiam ponas in formando & emulando toro, qui habet duas rotunditates; nam quatuor ambis columnam; alteram quaternus caret angulis, ut ofendat elevatio geometrica in I.

The Sixteenth Figure.

The TUSCAN Base in Perspective.



FROM the Geometrical Elevation A, is drawn the Plan B; which being put into Perspective, as you fee in C and D, from the Circles of the Plan C you have the Breadths of the Column, and of the Lift, and *Torus* of the three Bafes: And after the fame manner, by the Plan D, you have the Breadth of the Lift and *Torus* of the last Base. From the greateft Breadth of the Circles of the Plan C, we have erected Perpendiculars to the Parts that answer them in the Base, to the end that you may fee where the Points fall, which terminate the greateft Breadth of thofe Parts. Thofe Points (which in the biggest Circle of the Plan C are M and N) are found by touching the Extremity of the Circumference with a Line parallel to the Perpendicular E: for if the Figure were exact, that Line would touch every *Torus* of the three Bafes in the extreme Points of their Breadth.

The Heights of the four Bafes are fomeathing more difficult to be found. Nevertheless, if you confider well the Elevation F, and the other two G and H, (which are made by tranfporting the Divifions of the Elevation A upon the Perpendicular E) it will plainly appear, that there is no Point in the Circles of the Plan C, to which there may not be a correspondent Point found in the *Torus* and Lift of the fird Base: as the occult Lines fhew, that arife from M and N; each of which is a Continuation of three Lines: The fird of Breadth, from the Plan C to the Vifual; the fecond of Height, from the Vifual to the Elevation F; the third of Breadth, from the Elevation F to the Base. Now, tho' it's plain by the Figure, that the Body of the Column prevents the Sight of good part of the fillet; and the fame fillet takes off from part of the *Torus*, which would otherwife be vifible; for which Reafon the Back-part of the *Torus* is continued only till it meet the fame: Yet it's certainly belt to draw every Member complete, as tho' the Work were tranfparent; that the Parts hidden from the Eye may the better agree with thofe that are expofed to it.

When your Draught is finifhd, if you view it at the due Diffance, and dependently to the Point of Sight, you'll readily difcover and rectify what's amifs. Your chief Care will be employ'd in fhaping the *Torus*, difficult by reafon of its Roundnes both ways; namely, in the Contour of its Moulding, as in the Elevation I; and in the Circuit it makes about the Column.

Figura Decimaſeptima.

Deformatio baſis DORICÆ.



*Deditandam ſatietatem quam
pareret nimia uniformitas,
unam ex baſibus inverti-
mus. Utraque autem baſis
delineata eſt methodo quam
tradidimus figurâ præcedenti. Eademque
methodus adeò manifeſtè patet ex lineis oc-
cultis latitudinum & elevationum, ut ſuper-
fluum futurum ſit ipſam repetere.*

The Seventeenth Figure.

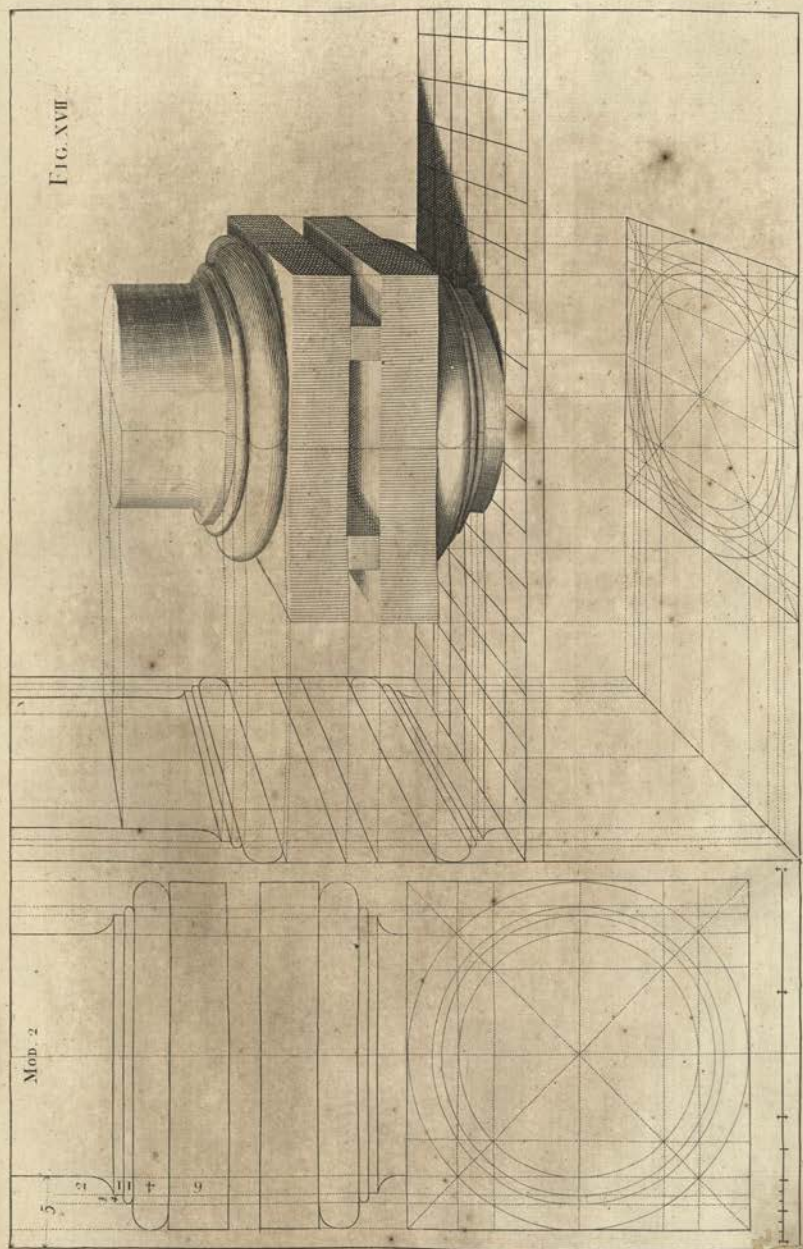
The DORICK Baſe in Perſpective.



HAT you may not be tir'd
with praſtiſing one and
the ſame thing, I have here,
for Variety-ſake, inverted
one of the Baſes. Both
of them are drawn after the Manner ex-
plain'd in the foregoing Figure; which is
ſo evident from the occult Lines of the
Plan and Elevation here given, that I
think it ſuperfluous to ſay any more
of it.

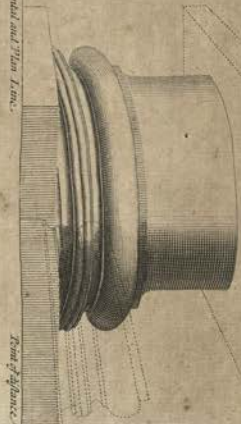
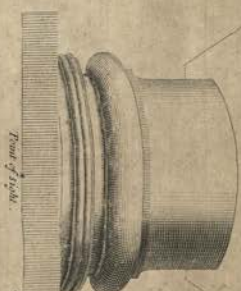
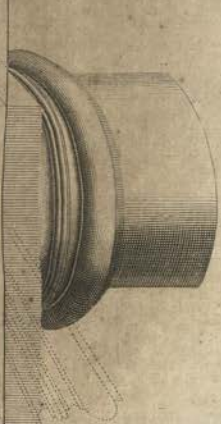
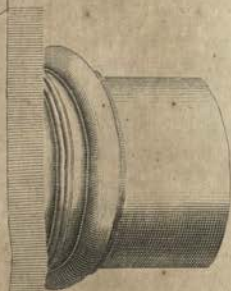
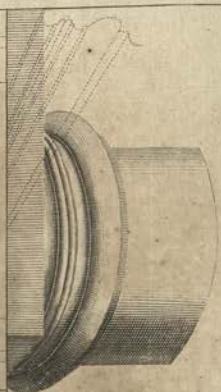
ADAM & CO. N.Y.

FIG. XVII



Mod. 2

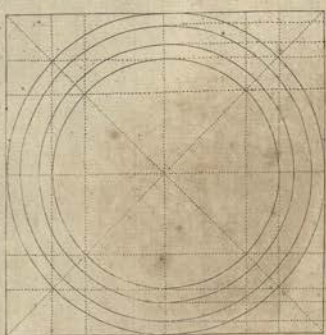
FIG. XVII.



Point of view.

of the Horizontal and Plan Line.

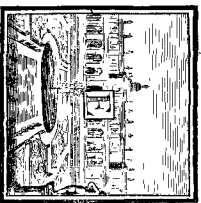
Point of distance.



THE
SCHOOL
OF
ART
AND
DESIGN

Figura Decimaoftava.

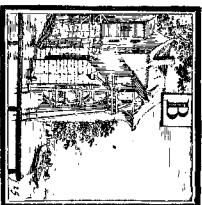
Optica delineatio bafis IONICÆ.



X multitudine ac varietate figurarum hujus Opticis, difces, mi Lector, modum deformandi res demiffas & sublines, magnas & parvas. In hac figura, linea cui bafes duarum columnarum incumbunt, est conjunctim linea plani, & linea horizontalis; linea cui bafes trium columnarum incumbunt, est altior linea horizontalis. Quemadmodum autem, si linea plani sit inferior linea horizontalis, linee quæ tendunt ad punctum oculi & ad punctum distantie, ascendunt sursum; ita si linea plani sit superior horizontalis, linee quæ veniunt ad punctum oculi & ad punctum distantie, tendunt deorsum. Quid si in eadem tabula sint plura plana, eorumque plinorum, ac linea horizontalis, sunt invicem parallela; adeoque ex linea, quæ omnes eas normaliter fecit, statim digressi potest, in qua proportionem, singula plana sint altiora, vel profundiora linea horizontali. Velim quoque obferves, institutionem columnæ mediæ, minorem esse latitudine columnarum lateraliū; & ut discrimen inter hujusmodi latitudinē eò est majus, quo punctum distantie fuerit vicinius puncto oculi. Quæ dicta sunt de columnis, intelligere oportet de bafibus, & de optica delineatione amborum. Nilominus, si figura ex debito puncto inspicitur, columnæ pictæ habebunt eandem apparentiam, quam haberent columnæ solide, invicem æquales.

The Eighteenth Figure.

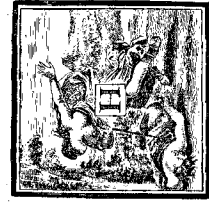
The IONICK Base in Perspective.



Y the Multitude and Variety of Figures in this Work, the Reader will be instructed in delineating things, however different in Size or Situation. In this Figure, the Line on which the two Columns rest, is both the Horizontal and the Ground-line; that on which the three Columns are plac'd, is so much higher than the Horizontal Line. And as where the Ground-line is beneath the Horizontal, the Lines drawn to the Points of Sight and Distance tend upwards; so, where the same is above the Horizontal, the Lines to the Points of Sight and Distance tend downwards. If in the same Picture there are different Grounds, some higher, others lower than the Horizontal Line; yet are all those Ground-lines, and the Horizontal, parallel one to another; and therefore, by a Line cutting them all perpendicularly, you presently know in what proportion each Plan or Ground is higher or lower than the Horizontal. I would have you observe, That the Breadth of the middle Column is, by the Perspective, render'd less than that of the Side-Columns; and that this Difference is the greater, as the Point of Distance approaches nearer to the Point of Sight. What has been said of the Columns, is also to be understood of the Bases, and the Projections of all their Parts in Perspective: Nevertheless, if the Picture be view'd from its due Place, the Columns will have the same Effect, as if solid; and all appear equal one to the other.

Figura Decimanona.

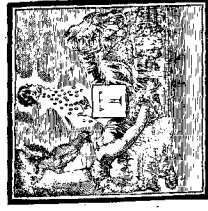
Optica imminutio basis
CORINTHIÆ.



ÆC basis juxta regulas traditas optice contracta est. Porro altitudo superficiei A est eadem cum latitudine linee visualis CD; latitudo crucis A est eadem cum latitudine secundi circuli vestigii B, incipiendo à minimo omnium. Due linee normaliter infixe basi, ostendunt maximam latitudinem quam habere debet columna superius Scapum. Maxima latitudo tori superioris & utriusque astragali, est eadem cum maxima latitudine tertii circuli. Maxima latitudo tori inferioris est eadem cum maxima latitudine ultimi circuli.

The Nineteenth Figure.

The CORINTHIAN Base
in Perspective.



HIS Base is put in Perspective by the Rules before laid down. The Height of the Superficies A is the same with that of the visual Line CD; the Breadth of the Cross A is the same with that of the second Circle of the Plan B, beginning with the least. The two Lines that stand perpendicularly on the Surface of the Base, shew the greatest Breadth of the Column's Shaft above the Fillet. The Extent of the upper *Torus* and the two *Astragals*, is the same with that of the third Circle; and the Extent of the lower *Torus* is the same with that of the outward Circle.

FIG. XIX.

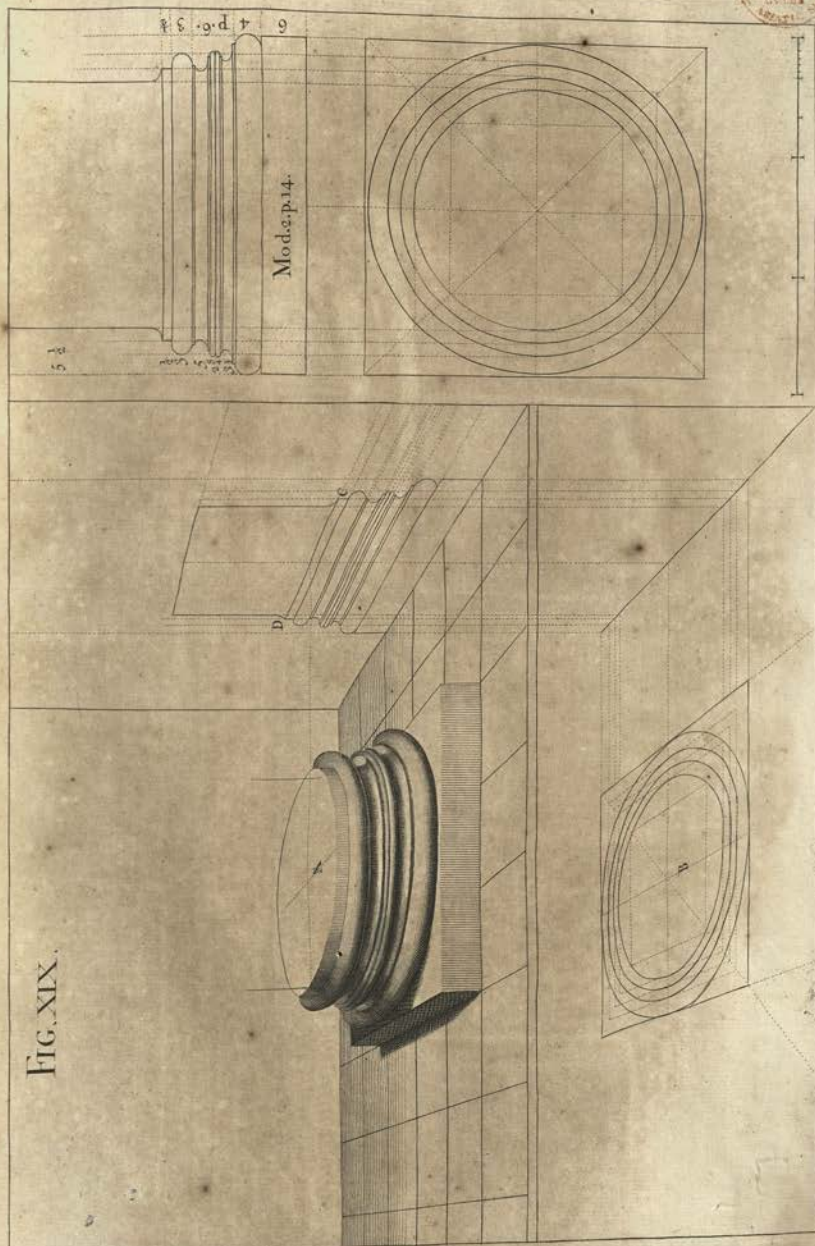


FIG. XX.

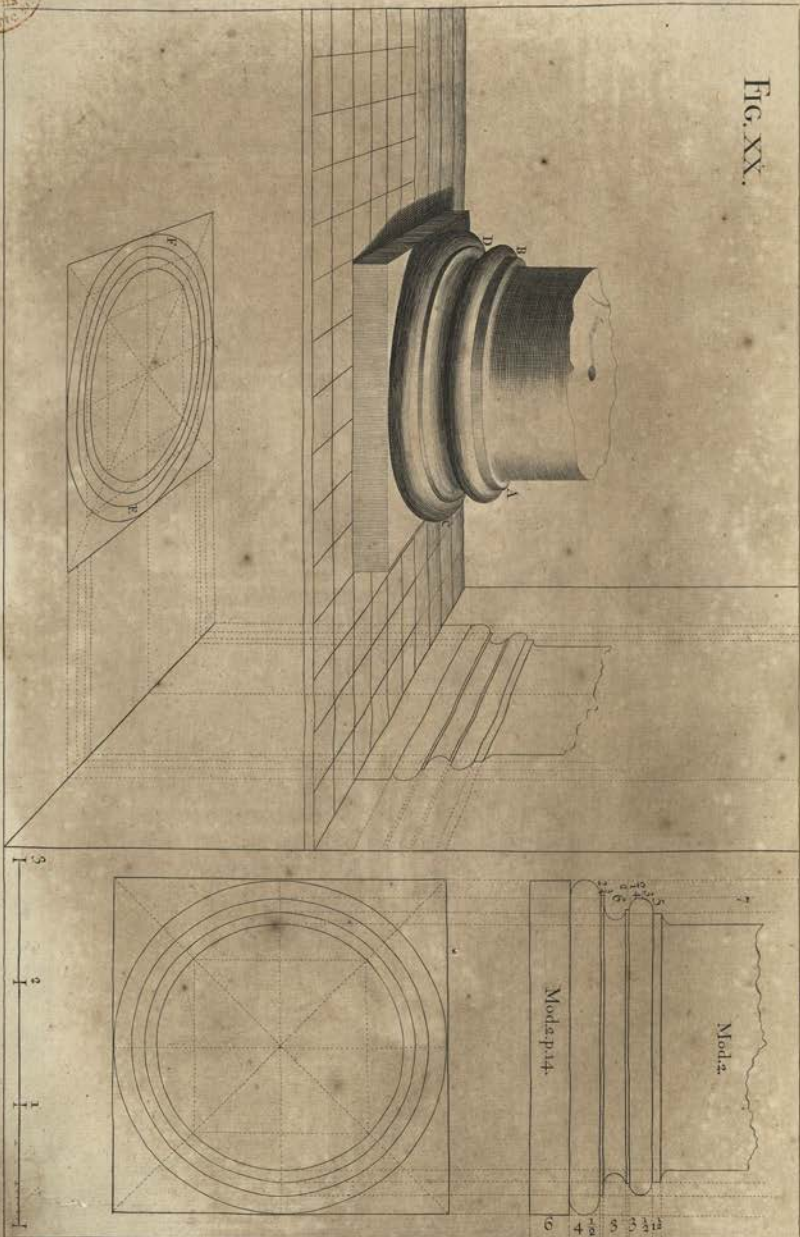


Figura Vigesima.

Basis ACTICURGA optice imminuta.



*ASIS Atticurga Pictoribus
præ reliquis familiaris est,
quia cum omnibus fere Ordini-
bus egregie consentit. Por-
rò ex punctis E & F maxi-
mæ utrinque latitudinis extremi circuli vestigi-
habetur maxima latitudo tori inferioris CD.
Ac cætera quæ spectant ad ipsum E ad to-
rum AB, petenda sunt ex dictis de basi
Etrusca.*

The Twentieth Figure,

The ATTICK Base in Perspective.



THE Attick Base is more frequently made use of by Painters, than any other; because it suits well with most of the Orders. The Points E and F, the greatest Breadth of the outward Circle of the Perspective-Plan, give the greatest Breadth of the lower Torus CD. And whatever else relates either to this or the upper Torus AB, is to be sought in the same Manner, as has been shewn in the Tuscan Base.

FIG. Vigefimaprima.

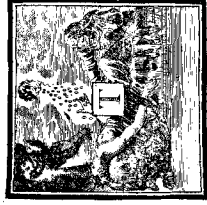
Optica imminutio capitelli ETRUSCI.



*ADEM cum reliquis formâ,
eâdemque methodo capitella
delineanda sunt: quum ha-
beant ipsa quoque suum ci-
matium quadratum, & sint
rotunda. Linea plani solet in iis fieri altior
lineâ horizontali: quia quum capitella impo-
nenda sint columnis homine altioribus, plerum-
que apparent sublimiora nostris oculis.*

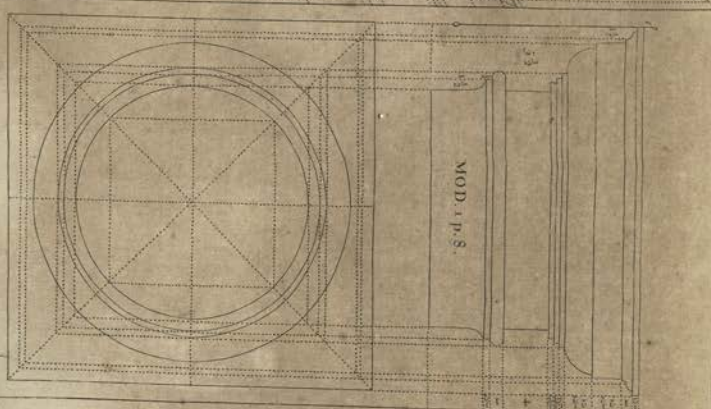
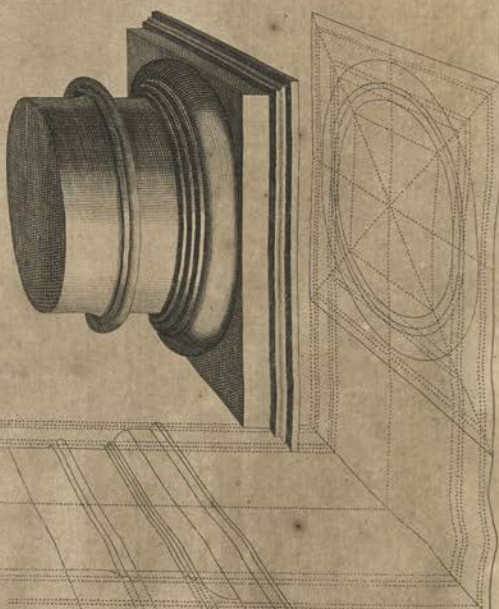
The Twenty-first FIG.

The TUSCAN Capital in Perspective.



THE Manner before deli-
ver'd concerning Bases, is
of the same Use in deli-
neating Capitals; foras-
much as these also have
their square *Abacus*, and their round Mem-
bers. The Ground-line in Capitals is usu-
ally plac'd above the Horizon; because,
when they are set upon Columns which
exceed a Man's Height, they are generally
represented above the Eye.

FIG. XII.



MOD. I. P. S.



Figura Vigefimafecunda.

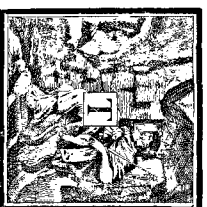
Optica projectio capitelli
DORICI.



APITELLUM hoc pluribus membris constat adeoque operosius est quam precedens. Nihilominus accurata delineatio vestigii geometrici omnes difficultates complanabit.

The Twenty-second Fig.

The Projection of a DORICK Capital in Perspective.



HIS Capital consisting of more Members than the foregoing, will be more troublesome to put in Perspective; but an accurate Delineation of the Geometrical Plan will certainly remove many seeming Difficulties.

Figura Vigefimatertia.

Deformatio capitelli IONICI.



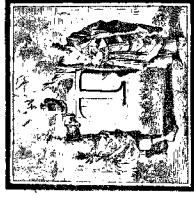
APITELLUM Ionicum poscit duas elevationes geometricas distinctas, alteram faciei, alteram lateris; ex iisque conflatur vestigium geometricum A, quod optice contrahitur, translatis in B punctis latitudinis C, & in E punctis longitudinis D, more consueti: ut ex punctis B latitudinis, lineæ tendant ad punctum oculi; ex punctis verò E longitudinis, lineæ tendant ad punctum distantie.

Ex vestigio capitelli optice contracto eruenda est elevatio longitudinis ut in figura. Ex utrisque verò juxta morem fiet capitellum nitidum, acceptis latitudinibus ex vestigio, altitudinibus ex elevatione longitudinis. Hæc quoque dabit maximam latitudinem singularum volutarum.

Modum delineandi capitellum Ionicum, in quo helices volutarum obliquantur, dabimus infra figurâ trigesima.

The Twenty-Third Fig.

The IONICK Capital in Perspective.



THE *Ionick* Capital requires two distinct geometrical Elevations, one of the Front, the other of the Side; from both which is found the geometrical Plan A, which is put in Perspective, by transferring into B the Points of Breadth C, and into E the Points of Length D, after the usual Manner; that from the Points of Breadth B, Lines may be drawn towards the Point of Sight; and from the Point of Length E, towards the Point of Distance.

From the Plan of the Capital in Perspective, is to be drawn the Upright of the Length, as in the Figure: and from both, as usual, the finish'd Capital is wrought, by taking the Breadths from the Plan, and the Heights from the Elevation; this giving the utmost Height, and that the utmost Breadth of each of the Volutes.

The Manner of describing the *Ionick* Capital, whose Volutes lie obliquely, we shall hereafter treat of in the Thirtieth Figure.

REVUE
DES
ARTS
DE
L'ARCHITECTURE
1851

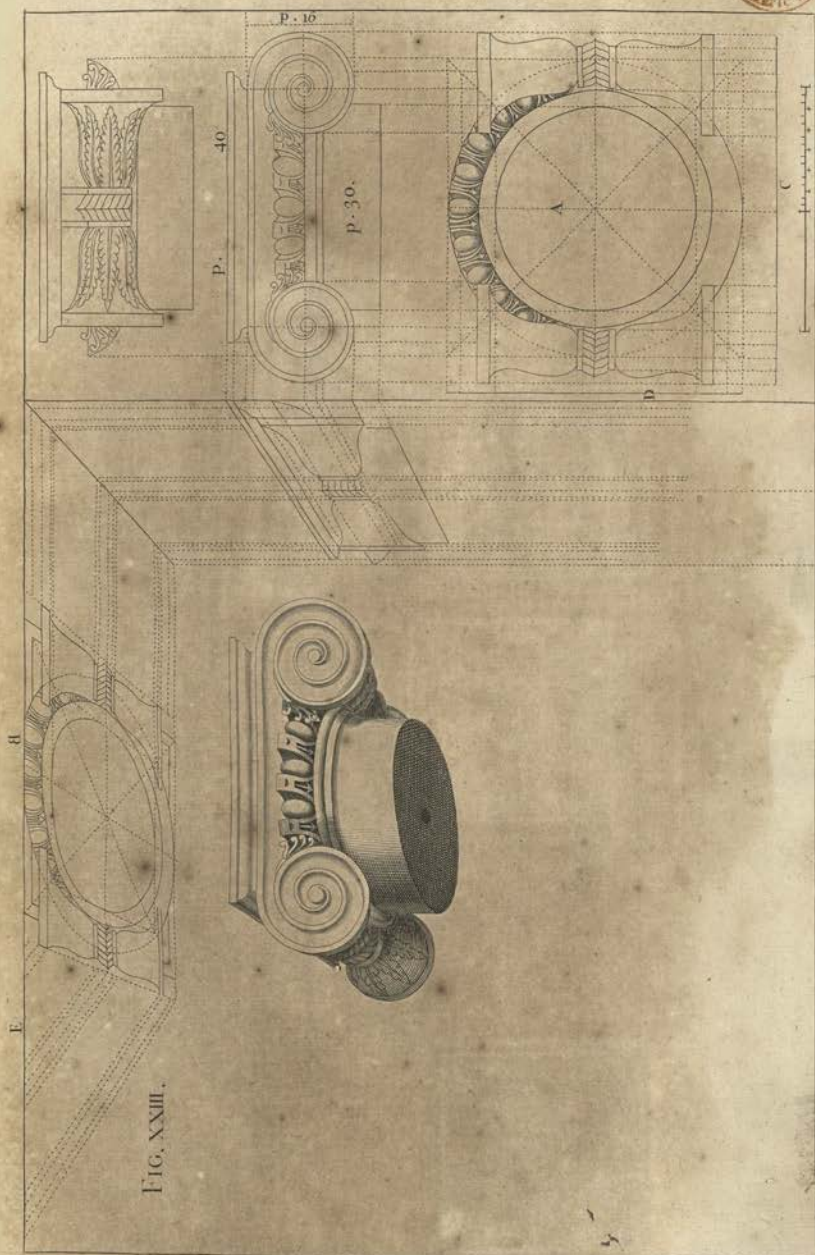
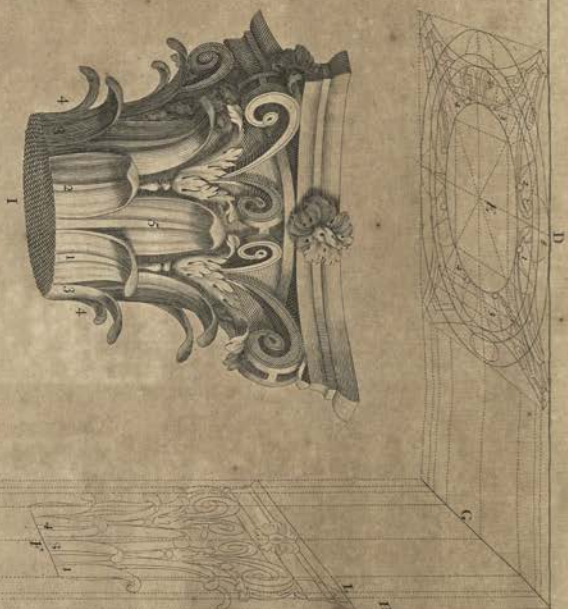


FIG. XXV



M 2 P 17.

M 13.

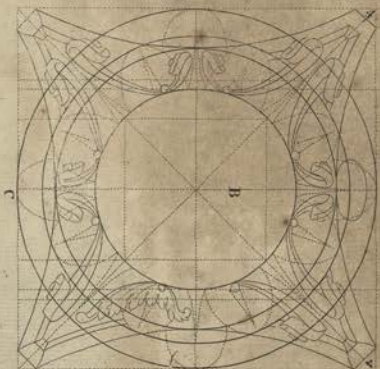


Figura Vigesimaquarta.

Optica projectio capicelli CORINTHII.



APITELUM Corinthium abobscure non poteris, nisi elevatione geometrica ejusque vestigio exactissime delineatis juxta regulas Barozzii.

Ad formandum ex vestigio B vestigium E, rectis oculis sicut quadrata necessario ad constructionem opticam quatuor vel trium saltem traditionem opticam linee C, & aliis more consueto. Contrahentur deinde lineæ oculitis vestigia foliorum, & abscidentur cetera quæ possia sunt in vestigio E.

Ut fiat optica elevatio longitudinis F, in lineam perpendiculararem H transferentur ex elevatione A omnes ejus divisiones. Complebitur autem per lineas rectas, quæ ex punctis divisionum ducuntur ad punctum oculi, ac per rectas ex circolorum summitate ac profunditate, quæ rectæ sint parallele ad lineam D, ac perveniant ad visuales G; indeque descendant, ac sint parallele ad lineam perpendiculararem H.

Capitulum nitidum exortæris ab infimo circulo I, ostendente ambitum columnæ. Succedent folia 1, 2, quorum latitudines accipitur ex vestigio E per circumum, postea una ejus cuspidæ in linea H; altitudines vero accipiantur ex elevatione F, postea una cuspidæ circum in linea D. Iamquam dico tum de foliis 3, 3, 4, 4, tum de folio 5, ac de aliis, & denum de cymano. Descensus vero lineæ curvæ ipsius cymarii incipiet ex acie L.

The Twenty-fourth Fig.

The CORINTHIAN Capital in Perspective.



HERE is no completing the Corinthian Capital, unless you most accurately delineate its Geometrical Elevation and Plan, according to the Rules of *Vignola*.

Being to form the Plan E from the Plan B, you must, with occult Lines, make the Squares necessary for bringing four, or at least three of the Circles into Perspective; transferring into the Line D the Divisions of the Line C, and the rest as usual. Then, with other occult Lines, contract the Plans of the Leaves, and finish what's farther requisite in the Plan E.

To make the Optick Elevation of the Length F, you must transfer into the Perpendicular H all the Divisions of the Elevation A; and complete the same by Lines drawn toward the Point of Sight, till they meet their respective Perpendiculars; which, proceeding from all parts of the Circles parallel to the Line D, intersect the Visual G: from whence they descend, Parallels to the Perpendicular H.

In working the clean Capital, you should begin with the lowest Circle I, which denotes the Compas of the Column. Then make the Leaves 1, 2, by taking their Breadths from the Plan E, with the Compas, and keeping one Point of them upon the Line H; and their Heights from the Elevation F, keeping one Point on the Line D. The same must be done, as well by the Leaves 3, 3, 4, 4, as by the Leaf 5, and the others; and last of all, by the *Alaeus* allo; the Sinking of the Horns whereto, answers that of the visual Line L.

Figura Vigesimaquinta.

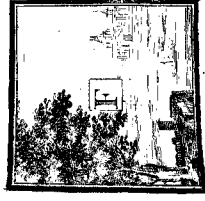
Optica descriptio capitelli
COMPOSITI.



*X iis que diximus de capitello
Corinthio, didiceris modum
faciendi capitellum Compo-
situm. Velim autem tibi
persuadeas, cum lectione ba-
rum regularum que sunt magistri inanimæ,
circini usum perpetuò conjungi oportere. Hic
enim vivi magistri defectum unice supplere
poteft.*

The Twenty-fifth Figure.

The COMPOSITE Capital in
Perspective.



ROM what has been said
of the *Corinthian* Capital,
may be learnt the Manner
of putting the *Composite*
also into Perspective. I
with I could prevail with you, that to the
Reading of the Rules, which in them-
selves are but lifeless Masters, you would
constantly add a diligent Practice of the
Figures by the Compasses; this being
the only way to supply the Want of a
living Master.

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FIG. XXV.

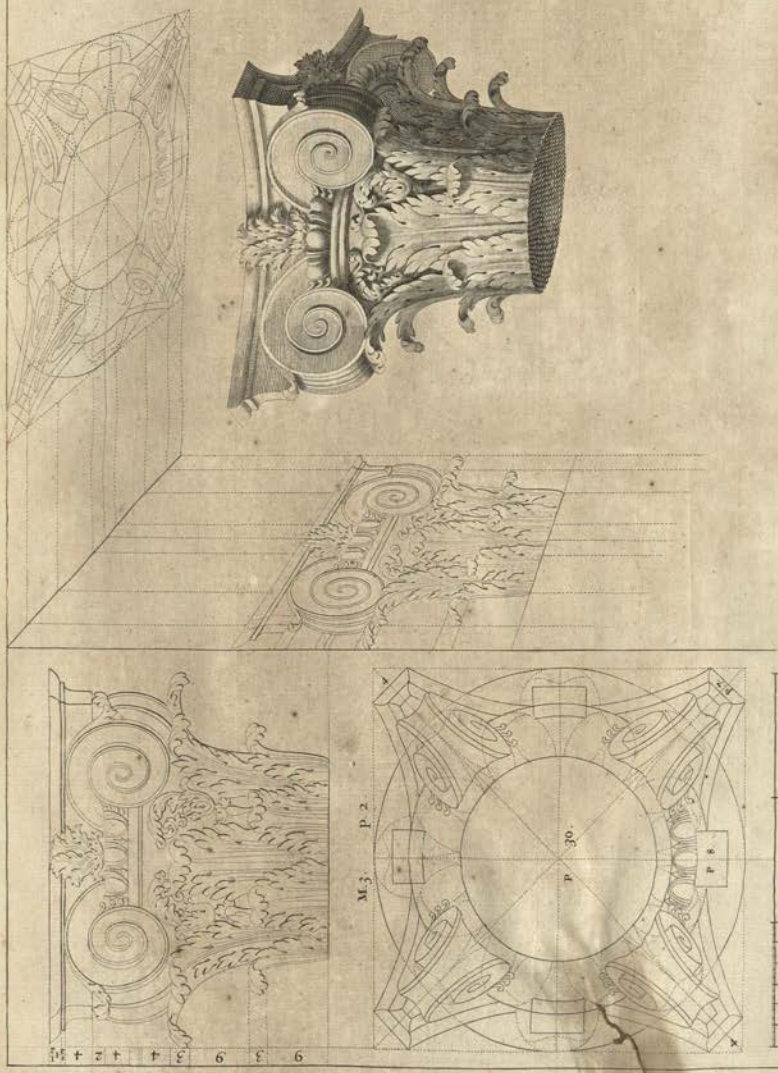
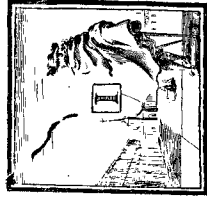


Figura Vigesima Septima.

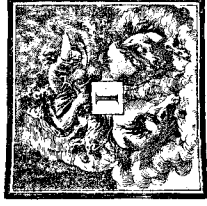
Optica delineatio coronicis
DORICÆ.



*N. facienda coronicæ Doricæ,
que majorem operam possit,
ob denticulos & triglyphos;
communis regula servanda
est. Si autem libeat coroni-
cem nitidam describere in papyro separatâ ab
ejus preparationibus, id profectò licet, tum in
hoc, tum in quocunque alio schemate.*

The Twenty-seventh Fig.

*The DORICK Entablature in
Perspective.*



N making the *Dorick* Entablature, which has something more Work in it than the former, on account of its Dentels and Triglyphs; the common Rule is to be observ'd. And if you would delineate the finish'd Entablature in a Paper distinct from that of its Preparations, you are at liberty so to do, either in this or any other Figure.

Mod. 2

P. 12

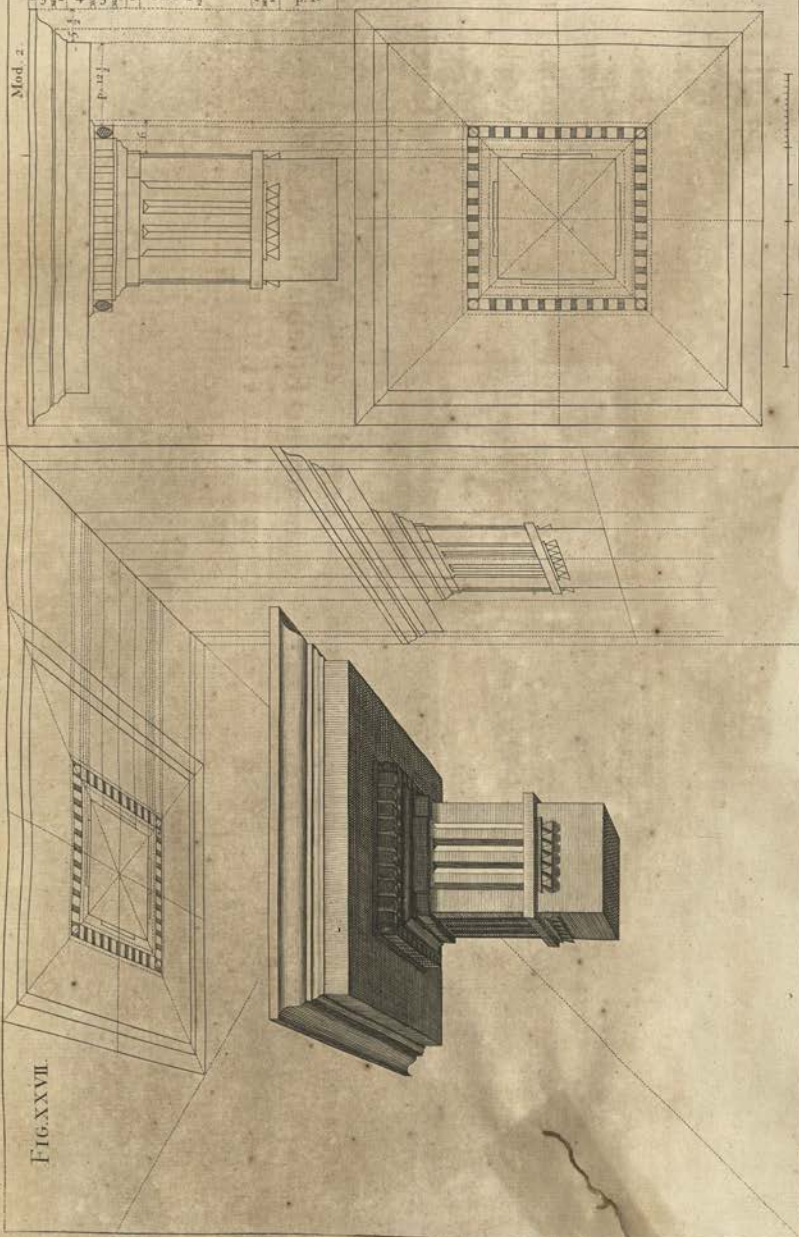


FIG. XXVII.

FIG. XXVIII.

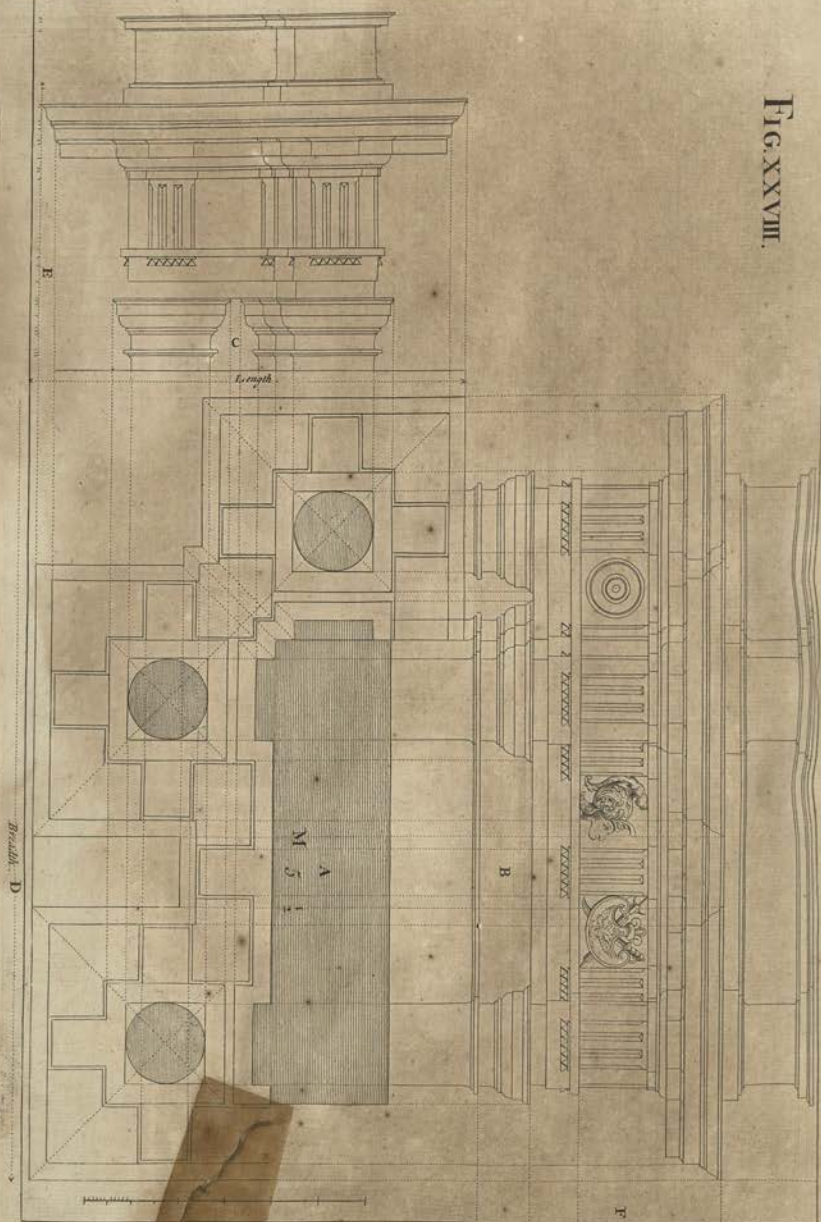


Figura Vigesimoctava.

Præparatio figuræ sequentis.



N Figura vigesimoctava, quæ continet vestigium & elevationes geometricas figuræ vigesimæ, oportuit latius delineare scorsim à facie *B*; quia facies exhibet latitudinem ædificii, latus vero exhibet longitudinem; atque una non est alteri æqualis. In vestigio geometrico solidus paries est *A*: circuli referunt summum scapum columnarum. Cetera dant projecturas cornicis, cum suis mutulis.

The Twenty-eighth Fig.

Preparatory to the following Figure.



N this Twenty-eighth Figure, which contains the Plan and Geometrical Elevations of the Twenty-ninth Figure, it was requisite to delineate the Side *C* separately from the Front *B*; because the Front, which signifies the Breadth of the Building, and the Side, which shews its Length, are not equal one to the other. In the Geometrical Plan the solid Wall is *A*; the Circles express the Nakeds of the Pillars Shafts at top. The rest is the Projecture of the Cornice, with its Mutules.

Figura Vigefimanona.

Optica projectio ædificii Dorici.



ABES in hac figura vigefimanona, opticam delineationem vestigiū, & unius ex elevationibus figuræ vigefimeoctavæ; nimirum, elevationis longitudinis; ex quibus eruitur imago nitida ædificii Ordinis Dorici, cum summitatibus & capitellis trium columnarum; ejusque epistylium, zophorus, & corona.

BO est linea horzontis; AC est linea plani; in quā, ex lineis D & C, figuræ vigefimeoctavæ, transferuntur puncta latitudinis & longitudinis duarum elevationum; prolongando versus C ipsam lineam plani, ut oportet. Operaberis autem, ut distinxas figurā vigefimeoctavæ; nimirum, in puncto V desinet latitudo vestigiū, incipiet longitudo; & ex punctis latitudinis linee tendent ad punctum oculi; ex punctis longitudinis lineæ occultæ tendent ad punctum distantiae. Ubi verò hæ lineæ secant visualem VO, fient parallele ad lineam AC, cum cæteris quæ necessaria sunt ad complendam delineationem opticam vestigiū.

Elevatio C, figuræ vigefimeoctavæ optice contrahetur more consueto, translatis in lineam AB divisionibus lineæ E vel F, ex quibus fient visuales ad punctum oculi; ac demissis ex linea visuali AO perpendicularibus ad lineam AC, ita ut lineæ parallele ad lineam plani AC connumerentur cum aliis lineis parallelis ad lineam AB.

Hic quoque locum habet observatio illa, cujus meminimus figurā vigefimeoctavæ, de lineis quæ deorsum excurrunt, & hinc inde terminant membra elevationis optice. Ex iis autem desumuntur projecturæ omnes coronis & capitellorum.

The Twenty-ninth Fig.

A Projection of the Dorick Order in Perspective.



IN this Twenty-ninth Figure, you have in Perspective the Plan, and one of the Uprights of the Twenty-eighth Figure; namely, that of the Length; from whence is drawn this finish'd Piece of the Dorick Order, which has the upper Part and Caps of three Pillars, with their Architrave, Freeze, and Cornice.

BO is the Horizontal-Line; AC that of the Plan; into which, from the Lines D and C of the Twenty-eighth Figure, are transfer'd the Points of Breadth and Length of the two Elevations; first prolonging the Line itself, as much as is needful, thro' C. The Work is then perform'd, as was shewn in the Twenty-third Figure; namely, the Divisions of the Breadth of the Plan end in the Point V, at which those of Length begin. From the first, Lines are drawn to the Point of Sight; and from the latter, occult Lines are directed to the Point of Distance: and where these cut the Visual VO, Lines are drawn parallel to AC; with those that are farther necessary for completing the Plan in Perspective.

The Elevation C of the Twenty-eighth Figure is put in Perspective, as usual, by transferring the Divisions of the Line E, or F, into that of AB in this Plate; from whence drawing Visuals to the Point of Sight, they are intersected by Perpendiculars let fall from those Divisions of AO made by the Parallels to the Ground-line AC, and again continu'd parallel to the Perpendicular AB.

The Oblervation, mention'd in the Twenty-sixth Figure, is also pertinent in this place; That the Lines, which, in the Perspective-Elevation, tend downward, give the Advance and Receds of the several Members of the Work; and from them are taken all the Projectures of the Entrance and Capitals.

FIG. XXX.

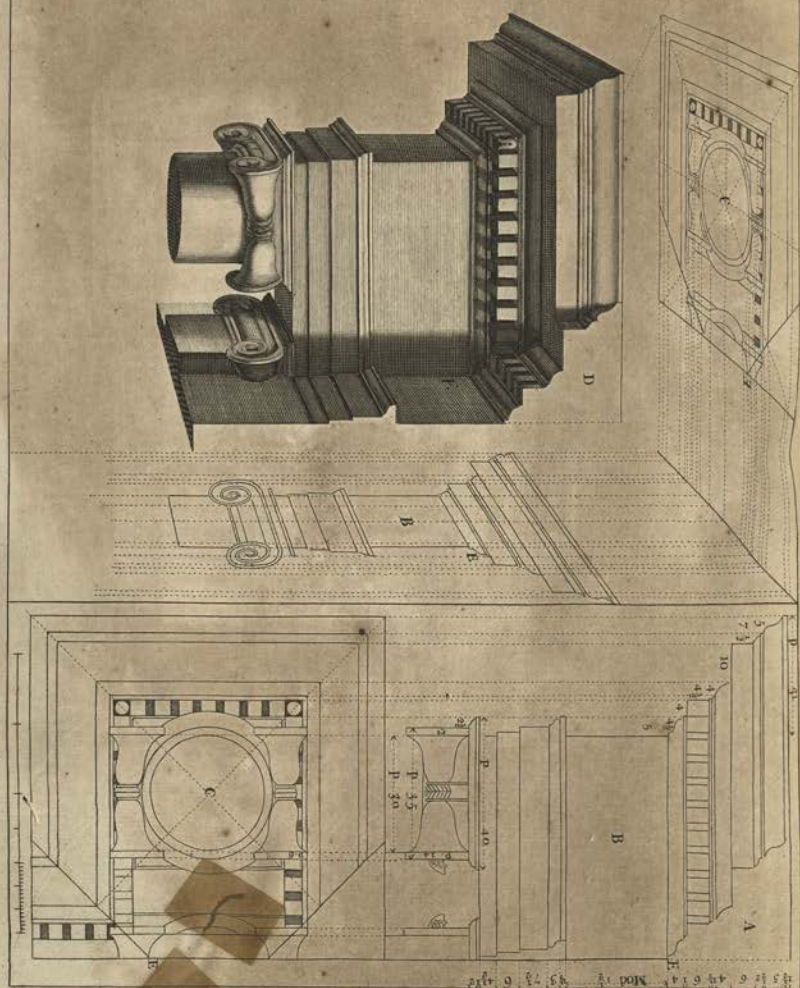


FIGURA Trigesima.

Optica projectio ædificii IONICI; ubi de modo jungendi scîsum cum vero.



I tibi, Pictor quum sis, ocellone apparatus quâdringia horarum, vel sepulchri Domini, mature ad tempus libet formam architecturæ alticujus Ecclesie jungendo scîsum cum vero, ut mihi sæpius contigit Mediolani ac Romæ, cum ingenti spectatorum delatatione & admiratione; paucis offendam tibi modum quem servare debes in operando.

Settio coronicis veræ, quæ, ut suppono, videri debet continua esse cum coronicæ pictæ in telario, est A; elevato geometrica coronicis, & reliquorum quæ delineanda sunt, est B; vestigium geometricum est C. Porro, tum vestigium tum elevato longitudinis optice contrahentur more conjueto, ut vides in C & B: ex utriusque formabitur in telario coronicæ mixta cum columna & anta; ipsæque telarium depictum, normatius cogmentandum erit veræ coronicæ.

Ut fiat et pars longitudinis, quæ coronicam pictam continere videatur cum verâ, & erui non potest ex elevatione deformata; oportet sectionem A transferre in D, decedendo visuales ex punctis terminatis membrorum sectionis D, usque dum occurrant lineis latitudinis eorundem membrorum. Quod si colores in telarium scitè inducantur, angulus in E, quævis merè depictus, videbitur verus; & ex adverso, angulus quos telarium ipsum depictum facit cum diversis adò crepidinibus coronicis veræ, nusquam apparebunt, præterquam in quadâ sinuè dimittatæ, & animo architecturæ veræ cum fictâ dignosci non poterit.

The Thirtieth Figure.

An IONICK Work in Perspective; with the Manner of reconciling the fictitious to the solid Architecture.



F, being a Painter, you were requir'd, against the Solemnity of the Holy-Week, to alter for a while the Architecture of some Altar-piece, by joining Painting to the real Work; 'as I have often done, both at Rome and Milan, to the great Satisfaction and Surprise of the Beholders: I shall briefly shew the Method to be observ'd in performing the same.

The Dissection of the solid Cornice, which I here suppose I shall appear continu'd in that painted on the Canvas, is A; the Geometrical Elevation of the Cornice, and other parts to be drawn, is B; the Geometrical Plan is C. The Plan and Elevation of the Length are put in Perspective after the usual Manner, in C and B; from those the finish'd Cornice, with the Pillar and Pilaster, are delineated on the Canvas; and the Picture is then conjoin'd, at right Angle to the true Cornice.

For adjusting the Members so, that the painted Cornice may seem to be the real one continu'd, (which can't be done by the Perspective Upright) you must transfer the Section A to D; and from the terminating Points of the several Members thereof, draw visual Lines, till they meet those of their respective Members in the Perspective. And if the Colours are laid by a skilful Hand, the Angle at E, tho painted only, will appear as real; and on the contrary, the Angles which the Members of the painted Cornice make with the different Projections of those of the true, will never be discern'd, unless in the very uppermost Fillet; but the Conjunction of the real with the painted Architecture, will be altogether imperceptible.

Figura Trigesima prima.

Optica projectio coronicis Corinthiæ, cum capitello & summitate columna.



N hoc schemate linea plani est CIE, horizontalis est DFO; punctum oculi est O, distantia est D. Elevatio geometrica capitelli Corinthii cum sua Coronicæ est A, quorum divisiones cernuntur in perpendiculari CD. Vestigium geometricum B habet longitudinem æqualem latitudini: optice autem contrahitur methodo consueta. Nimirum, translati divisionibus latitudinis & longitudinis in lineam plani CIE, ex punctis latitudinis sunt visuales ad punctum oculi; ex punctis vero longitudinis sunt oculiæ ad punctum distantie: hoc modo habes quicquid necessarium est ad contractionem opticam vestigii. Nam lineæ longitudinum sunt partes visuum, ut patet in GN, HL: lineæ latitudinum, parallelæ ad lineam plani sunt ex punctis in quibus lineæ tendentes ad punctum distantie secant visualem HO, ut videt in NL. Porro, si tantumdem prolongaretur horizontalis DO, ita ut haberet duo puncta distantie remota æqualiter ab O, medietas diagonalium, quæ sunt in quadrato majori GNLH optice deformato, & in quadratis ejus minoribus, tendent ad unum punctum distantie; altera medietas ad aliud punctum distantie.

Elevatio longitudinis optice contrahitur ductis parallelis ad CE, quæ ubi pervenerint ad visualem IO, continuantur cum aliis parallelis ad IK. Præterea, translati in lineam IK divisionibus lineæ perpendicularis CD, ex punctis divisionum sunt visuales ad punctum oculi, ac ducentur singula membra ipsius elevationis, ejus latitudines sunt partes visuum, altitudines vero sunt partes linearum parallelarum ad IK. Denique ex vestigio & ex elevatione delineantur nudi, primum sicut quadratæ pitello. Ut autem facilius delineentur nudi, primum sicut quadratæ formæ, ut in M; deinde congruus flexus in singulos inducitur.

The Thirty-first Figure.

The Optick Projection of a Corinthian Cornice, with the Capital and Part of the Column.



*I*n this Figure the Line of the Plan is CIE, that of the Horizon is DFO; the Point of Sight is O, the Point of Distance D; the Geometrical Elevation of the Corinthian Capital, with its Entablature, is A; whole Divisions are seen in the Perpendicular CD. The Length and Breadth of the Geometrical Plan B are equal, and the Plan is put into Perspective after the usual Method; to wit, by transferring the Divisions of Breadth and Length into the Line CIE; from the Points of Breadth drawing Visuales to the Point of Sight; and from those of Length occul Lines to the Point of Distance: by which Interfection you have all that's necessary for putting the Plan into Perspective. For the Lines of Length are Parts of visual Rays, as is manifest by GN, HL; and the Lines of Breadth are made Parallels to the Ground-line, from the Intersections before-mention'd, as is seen in NL. Moreover, if the Horizontal Line DO were so prolong'd, as to receive another Point of Distance equidistant from O; half the diagonal Lines of the great Square GNLH, and of the lesser Squares contain'd therein, would tend to one Point of Distance, and the other half to the other.

The Elevation of the Length is put in Perspective, by continuing the Parallels to CE, till they cut the Visual IO; and from thence dropping Lines parallel to IK: Then transferring into IK the Divisions of the Perpendicular CD, from them make visual Lines to the Point of Sight, and draw the several Members of the Upright; whose Breadths are the Parts of Visuales, and their Heights Parts of Perpendiculars, or Lines parallel to IK. Lastly, from the Plan and Elevation of the Length, you delineate the finish'd Cornice and Capital: But that you may more easily draw the Moldings, first make them in a Square Form, as in M; and that will very much assist you to give the Scroll of each a more agreeable Turn.

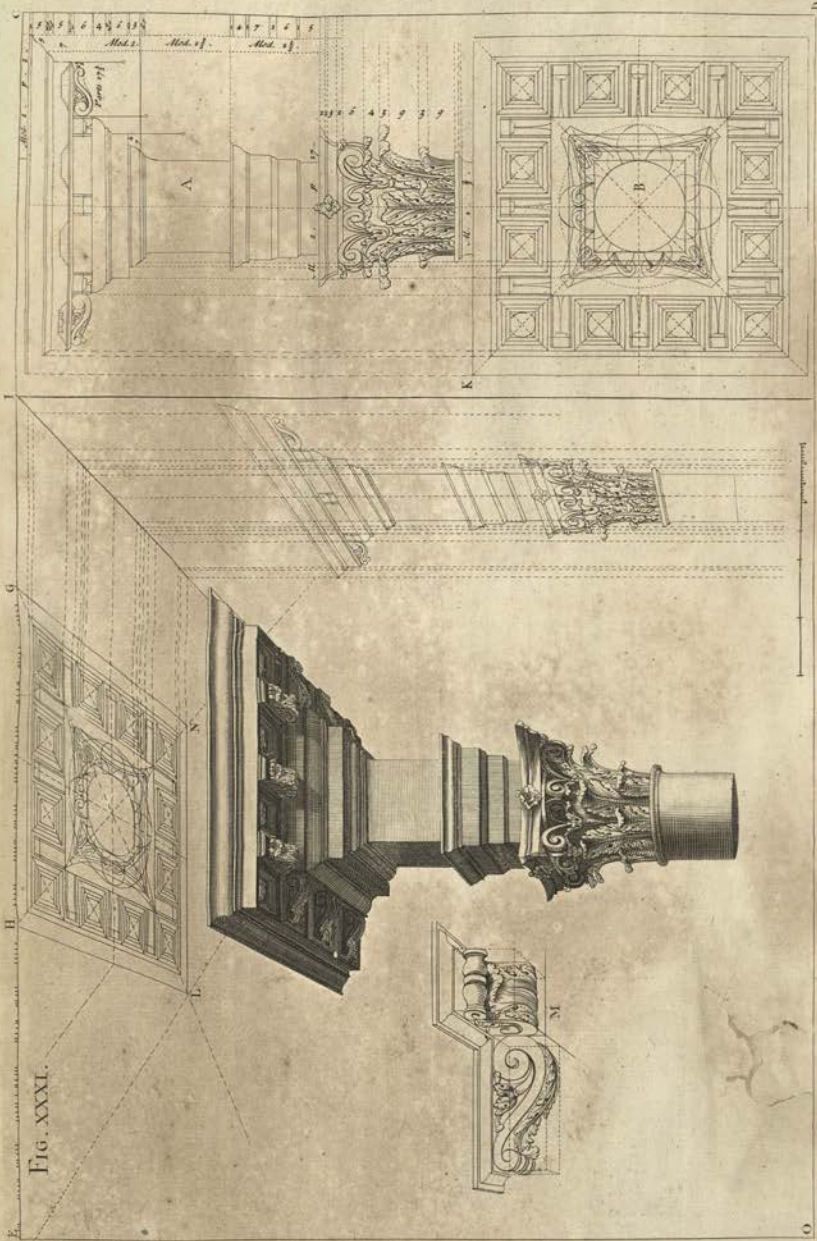


Fig. XXXI.

FIG. XXXII.

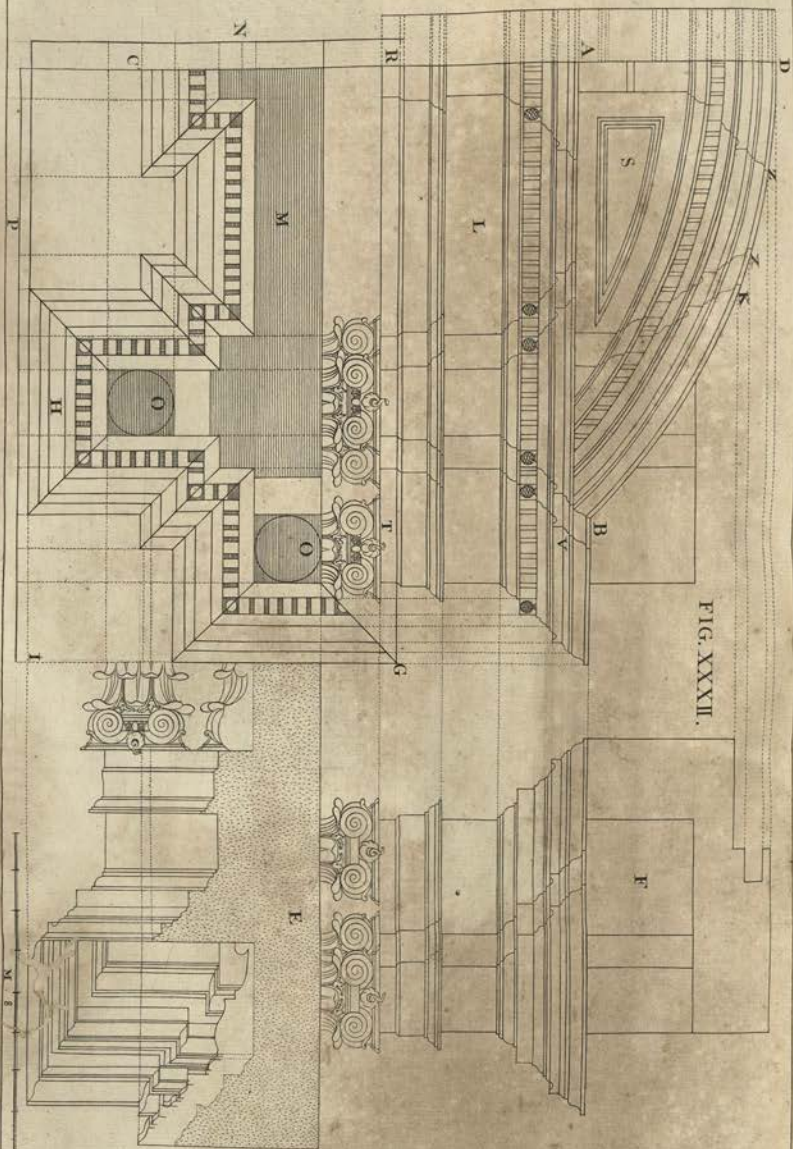


Figura Trigefima Secunda.

Delineatio geometrica coronicis,
Ordinis COMPOSITI.



T hoc schema grandius ac distinctius
esset, ejus mediocritatem cunctatim suscepi
delineandum. *P* *N* est vesigium geo-
metricum. *M* est solidus paries. *O* *O*
spatia columnarum. In *H* sunt crepi-
dines coronicis. Elevatio geometrica
latitudinis aedificii consistat epistylio *T*,
zophoro *L*, corona *V*, supra quam eminet fastigium *S*.

*S*am ut inveniantur centrum arcuum, distantie *A* *V* fiat æ-
qualis distantia *A* *C*. Postquam una cuspide circini in *C*,
alia extendatur usque ad *V*: ita fient arcus quorum ultimus
est *B* *D*, omnesque sunt concentrici. Elevatio *F* ostendit
longitudinem aedificii ex parte *G* *I*; elevato *E* ostendit lon-
gitudinem ipsius ex parte *D* *R*.

The Thirty-second Fig.

The Geometrical Design of a Cornice, of the
COMPOSITE Order.



H *A* *T* this Figure might be larger
and more distinct, I have here de-
scribed only the Half of it. *P* *N* is
the Geometrical Plan. *M* is the
solid Wall. *O* *O* are the Places of
the Columns. *H* shews the Pro-
jections of the Cornice. The Geo-
metrical Elevation of the Breadth of the Frontif-
piece, consists of the Architrave *T*, the Freeze *L*,
and the Cornice *V*, over which is rais'd the Pedi-
ment *S*.

For finding the Center of the arch'd Lines of the
Pediment, make the Distance *A* *C* equal to that of *A* *V*;
and placing one Point of the Compasses in *C*, extend
the other to *V*, and describe the Arch. The other
Arches, of which *B* *D* is the utmost, have all the same
Center. The Elevation *F* shews the Length of the
Work on the Side *G* *I*. The Upright *E* shews the
Length of the same on the Front *D* *R*.

Figura Trigefmatertia.

Deformatio coronicis COMPOSITÆ.

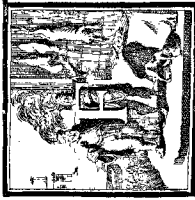


FIGURA hæc trigefmatertia minus ardua tibi videbitur, si ex ea delineandam primum fufcipias mediocritatem quæ refpondet vefigio PN & elevationis BR figure trigefme fecundæ; rejefto in ultimum fafcigium, poftquam cætera comploveris. Linea BV eft horizontalis. Punctum oculi eft V, punctum diftantia remotum eft ab V fpatio BV, additis modulis quatuordecim eam dimidio. Linea plani eft AR, in quam ex Q verfus A transferetur latitudo P; ex Q verfus R transferetur longitudo N, eam omnibus earum divifionibus; ut ex punctis latitudinis fiant vifuales ad punctum oculi; & ex punctis longitudinis fiant oculæ ad punctum diftantia. Ex his habes quicquid neceffarium eft ad projectionem optickam vefigii, ut oftendimus figura trigefma prima. Eademque methodo, quam ibi fervavimus, contrabes elevationem P longitudinis coronicis: ac tum ex illa, tum ex vefigio, eruetur coronicis nitida more confucto.

Ut delineetur fafcigium, transferende fiant in lineam AB divifiones ipfius ex elevatione F figure trigefme fecundæ, ac ducende vifuales ad punctum oculi, additis lineis terminatis uniuscuiusque membri, quæ accipiantur ex vefigio Q optice deformato. Centrum O arcuum fafcigii nitidi, remotum eft à fummitate coronicis, mediocritate diftans, quam habent ungues quadræ cui fafcigium ipfum incumbit. Ac provide, fi accipias ex elevatione P diverfas altitudines membrorum fafcigii; latitudines vero accipias ex vefigio Q, opus tuum feliciter abfoves.

The Thirty-third Figure.

A COMPOSITE Cornice in Perspective.



HIS Thirty-third Figure will be found the lefs difficult, if you firft attempt that Half which answers to PN in the Plan, and BR in the Upright of the Thirty-second Figure; leaving the Pediment, till all the reft be finifh'd. The Line BV is the Horizontal. V is the Point of Sight; the Point of Difance is fourteen Modules and a half without the Point B, more than the Interval BV. The Line of the Plan is AR, in which from Q toward A you

have the Divifions of Breadth of the foregoing Plan P; and from Q to R thofe of the Length thereof N: From the former, Vifuals are drawn to the Point of Sight; and from the latter, occult Lines to the Point of Difance. And from thefe you have all that's neceffary for putting the Plan in Perspective; as was fhewn in the Thirty-fift Figure. By the Method there obferv'd, you may alfo defcribe the Perspective-Elevation of the Length P; and from this, and the Plan, delineate the finifh'd Cornice after the ufual Manner.

For making the Pediment, the Divifions of the Elevation F in the Thirty-second Figure, muft be transferr'd into the Line AB, and Vifuals drawn from them to the Point of Sight; giving to each Member its proper Out-line and Contour, as may be taken from the Perspective-Plan Q. The Center O of the Arches in the finifh'd Pediment, is plac'd below the upper Member of the Cornice, as much as half the Extent of the upper Fillet from whence the Pediment fprings. And by taking the feveral Heights of the Members thereof, from the Elevation P; and the Breadths from the Plan Q; you will fuccesfully finifh and complete your Work.

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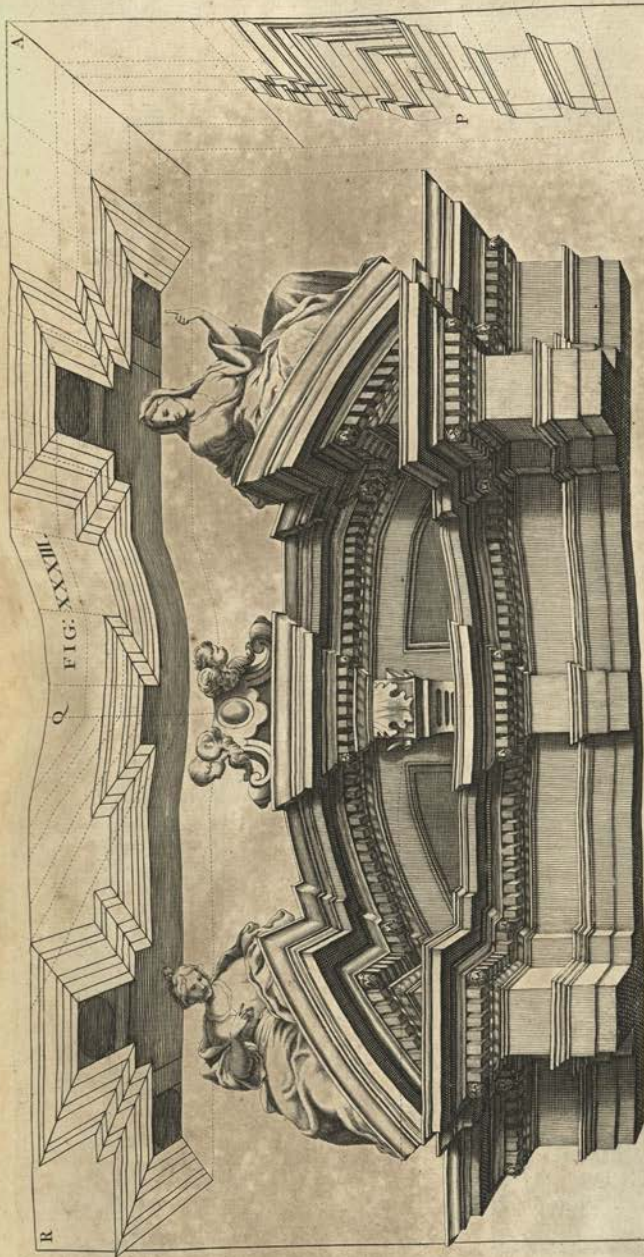


FIG. XXX

R

Q

P

A

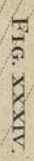
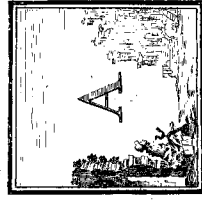


Figura Trigefimaquinta.

Deformatio coronicis. COMPOSITÆ,
ad latus infpectæ.



RTIFICIUM nitide coronicis, ex vestigio
& elevatione figure trigefimaquartæ eruen-
da, non differt ab eo quod sæpe traditum est.
Itaque fupposito, quod linea plani & hori-
zontis, ac puncta oculi ac diftantiæ, habeant
in hoc schemate fitum omnino eundem, quem
habent in præcedenti; ope duorum circumorum,
inveniuntur diftantiæ, quas anguli neceffarii ad
integram delineationem coronicis, habent à linea plani, & à linea nor-
mali ad ipsam lineam plani. Nam duendo lineas vifuales, aliasque li-
neas parallelas ad ipsam perpendicularum, cum terminis & flexibus qui
conveniunt fingulis membris, complebitur delineatio.

In faffigio vifuales funt penitus oculæ: puncta autem fimilia H &
I, ex quibus faffigium incipit introfum fecti, incidunt in unam eandemque
vifualem. Idifum dico de aliis punctis fimilibus. Nam lineæ rectæ
omnes, quæ in figura trigefimæ funt parallele ad lineam plani, in
figuris trigefimaquarta & trigefimaquinta funt partes linearum vifua-
lium.

The Thirty-fifth Figure.

A Side-View of the COMPOSITE Cornice,
in Perspective.



THE Manner of drawing this finifh'd Cornice,
from the preceding Plan and Elevation, is the
fame with that fo often fhewn you. Admit-
ting therefore, that the Lines of the Plan and
Horizon, and the Points of Sight and Diflance,
have the very fame Pofition in this, that they
had in the preceding Scheme; all the Angles
neceffary for delineating the entire Cornice, are
readily found by the help of two pair of Compaffes, taking their Diflances
one way from the Ground-line; and the other way from a Line perpen-
dicular to the fame: Then drawing the vifual and perpendicular Lines,
and keeping the Place and Contour of the feveral Mouldings, you com-
plete your Defign.

In the Pediment the vifual Lines are wholly occult; and the Points H
and I, where the Pediment begins to break back, being of like Height,
are found in one and the fame Vifual: And the fame may be laid of all
the Points that are of equal Height from the Plan; for all the right Lines,
which in the Thirty-third Figure are Parallels to the Ground-line, in the
Thirty-fourth and Thirty-fifth Figures are Parts of the vifual Lines.

FIG. XXXV.

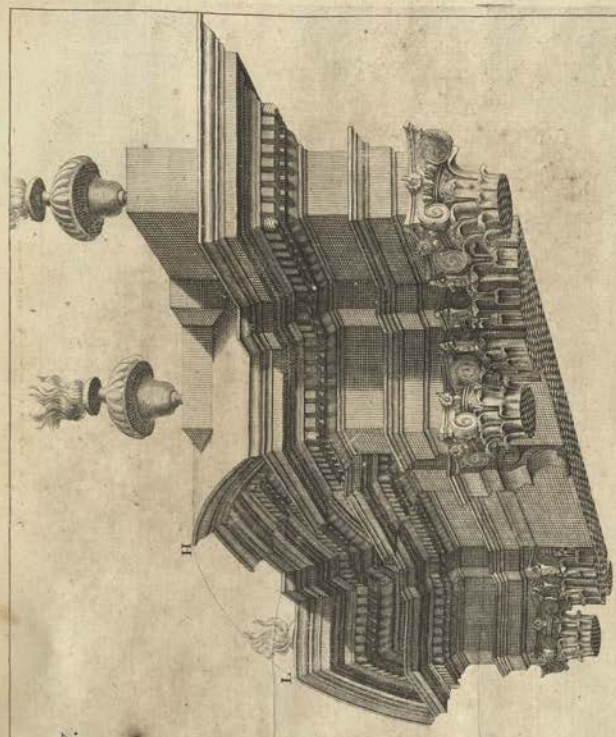


FIG. XXXVI.

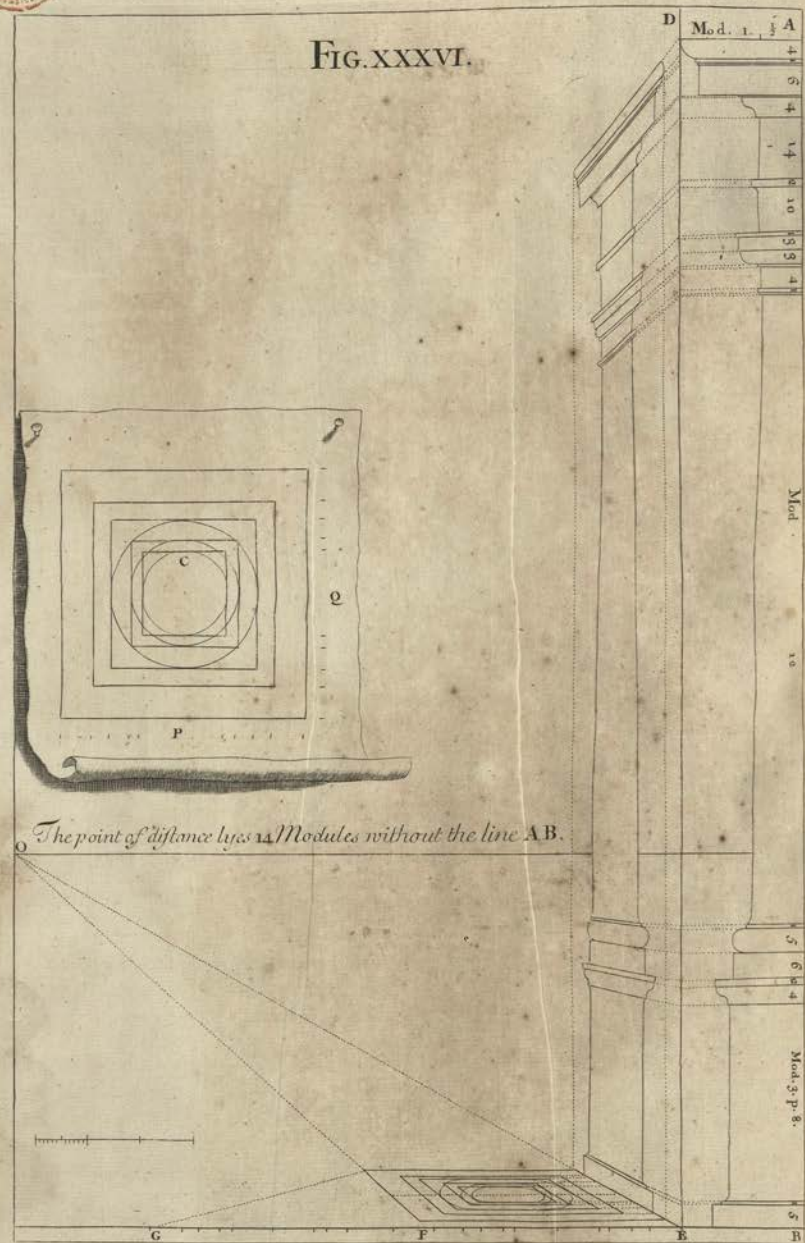


FIGURA Trigesimasexta.

Præparatio ad Figuram trigesimamseptimam.

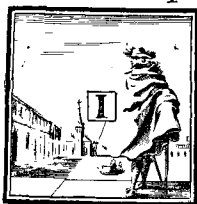


N vestigio Geometrico C, & in ejus elevatione AB, præcipuas tantum lineas adnotavi, ne figuram confunderem, & ut studiosorum industriæ aliquid relinquerem. Linea plani EG habet divisiones luitudinis P, & longitudinis Q, vestigii Geometrici C. Ex punctis latitudinis ducentur more solito visuales ad O punctum oculi; ex punctis longitudinis fient occultæ ad punctum distantie, quod extra lineam AB protenditur modulis quatuordecim: & ubi occultæ ex divisionibus longitudinis secant visualem FO, fiunt parallele ad lineam plani EF, adhibitis sectionibus talium parallelarum cum visualibus, ad complendam deformationem vestigii.

Eadem lineæ quæ in vestigio deformato sunt parallele ad EF, prolongantur usque ad visualem EO, & continuantur cum aliis parallelis ad perpendicularum DE. Fiunt quoque visuales ad punctum oculi ex divisionibus elevationis AB translatis in perpendicularum DE; adhibitis sectionibus talium parallelarum cum visualibus, ad complendam deformationem longitudinis elevationis.

The Thirty-sixth FIGURE.

Preparatory to the Thirty-seventh Figure.



N the Geometrical Plan C, and in the Elevation thereof AB, I have only mark'd the principal Lines, as well for avoiding Confusion in the Figure, as that something might be left to the Industry of the Studios. The Line of the Plan EG has the Divisions of Breadth P, and of Length Q, of the Geometrical Plan C. From the Points of Breadth are drawn, as usual, Visuals to the Point of Sight O; From the Points of Length occult Lines are produc'd to the Point of Distance, which lies fourteen Modules without the Line AB: And where the occult Lines

from the Divisions of Length cut the Visual FO, Parallels are made to the Ground-line EF; and from the Intersections of those Parallels with the Visuals, you complete the Delineation of the Plan in Perspective.

The Lines which in the Plan are Parallel to EF, being prolong'd to the Visual EO, are then continu'd parallel to the Perpendicular DE. And from the Divisions of AB, produc'd to DE, visual Lines are drawn to the Point of Sight; which intersecting the Perpendiculars aforesaid, you from thence find the Length of the Elevation in Perspective.

FIGURA Trigesimasseptima.

Deformatio Columnæ ETRUSCÆ.



X præparatione quam exhibuimus Figurâ trigesimasextâ, eruitur columna hæc nitida Ordinis Etrusci, optice imminuta per latitudines & altitudines partium singularum; quæ accipiuntur ope duorum circinorum, ut sæpius dictum est.

The Thirty-seventh FIGURE.

A TUSCAN Column in Perspective.



FROM the Preparation exhibited in the Thirty-sixth Figure, is drawn this complete Piece of the *Tuscan* Order, brought into Perspective by means of the Breadths and Heights of the several Parts, exactly taken off with the Compasses, as has been often said.

FIG. XXXVII.

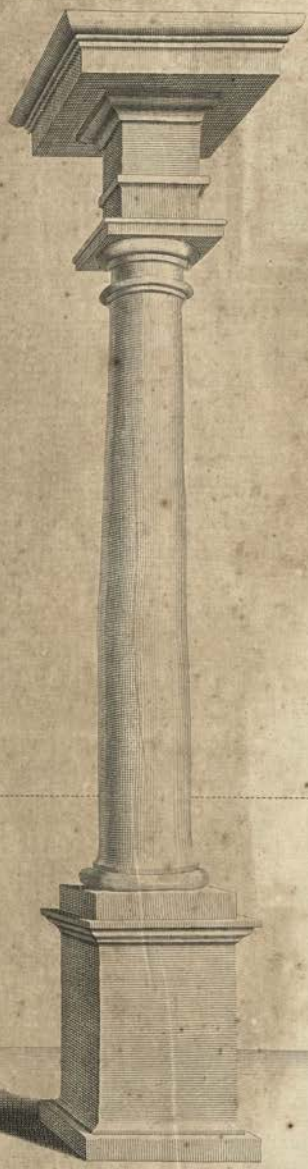




FIG. XXXVIII.

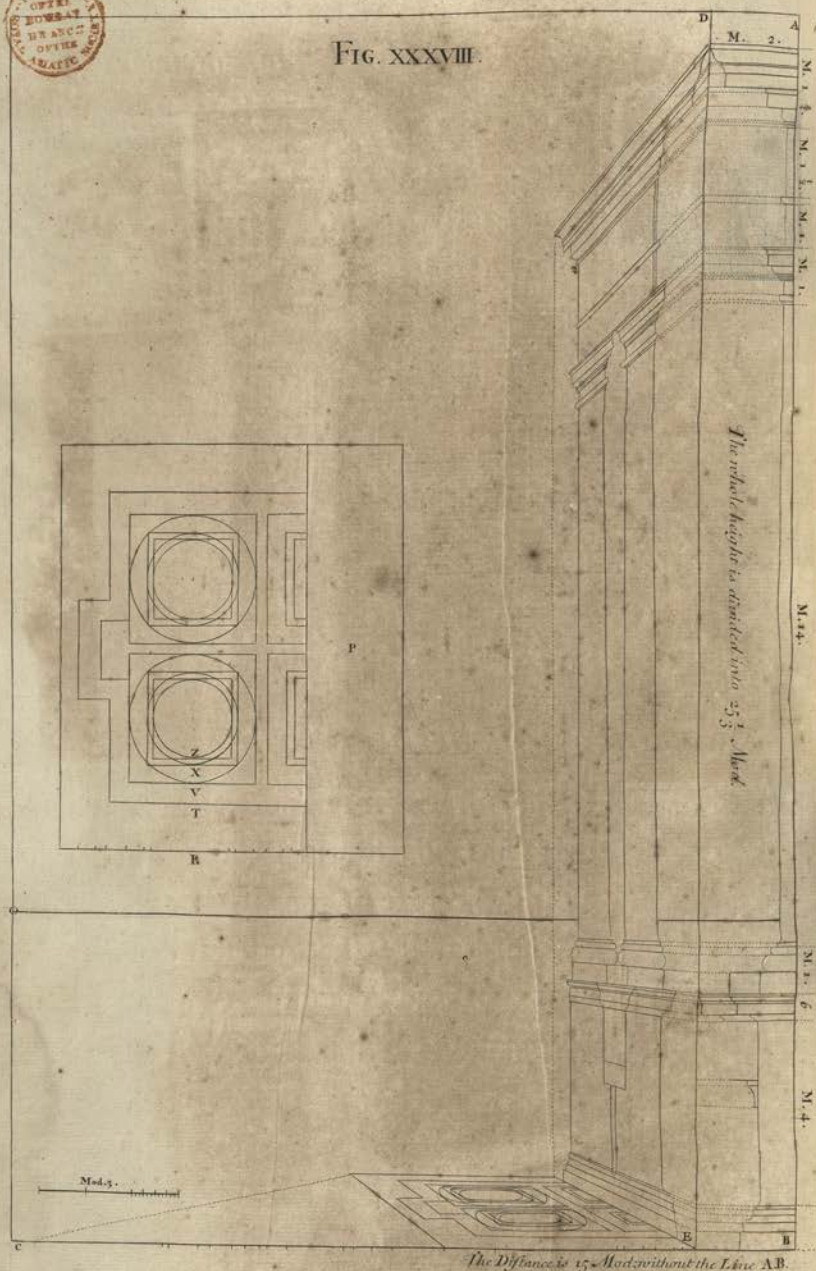


FIGURA Trigesimaoctava.

Præparatio ad Figuram trigesimamnonam.



*ÆC Figura est simillima Figuræ trigesimæ-
sextæ. In vestigio P limes prominentiæ co-
ronicis est R; coronæ verò in stylobatâ est
T; Soliditas stylobatæ est V; ambitus co-
lumnæ in imo est X, in summo Z.*

The Thirty-eighth FIGURE.

Preparatory to the Thirty-ninth Figure.



HIS Figure is very much the same with the Thirty-sixth. In the Plan P, the utmost Projecture of the Cornice is R; that of the Cap of the Pedestal is T; the Trunk of the Pedestal is V; the naked Shaft of the Column at bottom is X, at top is Z.

FIGURA Trigesimanona.

Deformatio ædificii DORICI.



ABES hoc loco ædificium Doricum, addito statuæ unius ornamento. Velim autem, ut si Figuram aliquam ex his desumptam, delineandam assumas, aliquid mutes saltem in loco punctorum oculi aut distantie. Hoc modo majores in hac arte progressus facies; & si alicubi cælator aberraverit, ex lapsu illius nullum senties detrimentum.

The Thirty-ninth FIGURE.

A Piece of DORICK Architecture in Perspective.



IN this Plate you have a *Dorick* Composition, with the additional Ornament of a single Statue; but I would advise, when you undertake to work after any of these Designs, you would at least place the Points of Sight and Distance somewhat differing from those here given; which Practice will both greatly further your Progress in this Art, and prevent any Inconvenience, that may arise from a Mistake of the Engraver.

FIG. XXXIX.

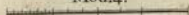
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MUSEI
L. R. M.
MAY 23. 1845





FIG. XL.

Mod.4.



Mod.3.

A

B

C

D

E

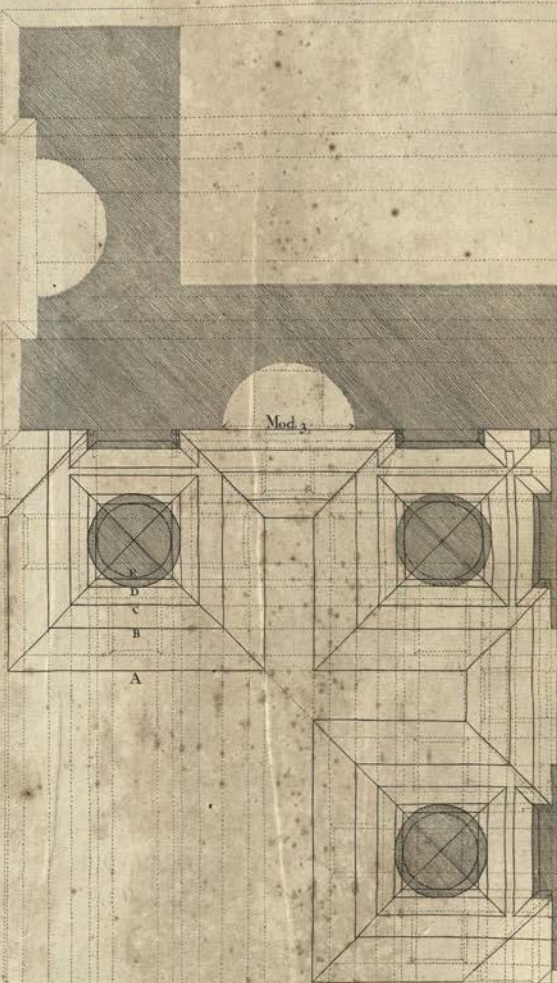


FIGURA Quadragesima.

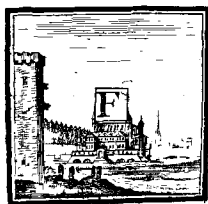
Vestigium geometricum ædificii Ordinis DORICI.



T studiosorum, qui sedulo se exercuerint in praxibus hucusque traditis, & ad majora inbient, utilitati serviam, delineandam suscepi medietatem arcus cum tribus columnis, ac totidem statuarum loculamentis. Ad vitandam autem confusionem, ea duntaxat membra in vestigio adumbrantur, quæ recensuimus figurâ trigesimaoctavâ, & ostendunt characteres A, B, C, D, E.

The Fortieth FIGURE.

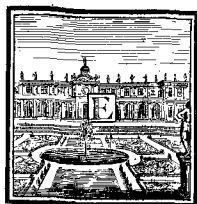
The Geometrical Plan of a Design, of the DORICK Order.



OR the Benefit of the Studios, who having reduc'd to Practice the Rules hitherto laid down, aim at yet greater Things; I have here undertaken to delineate half an Arch adorn'd with Three Columns, and as many Niches for Statues. But to avoid Confusion, I have given full Lines to those Members only, which were mention'd in the Thirty-eighth Figure, and which are here denoted by the Characters A, B, C, D, E.

FIGURA Quadragesimaprima.

Elevatio geometrica ædificii Dorici.



X vestigio geometrico eruitur hæc elevatio geometrica longitudinis ædificii nostri. Et iccirco figura ista quadragesimaprima, cujus mensuræ omnes desumptæ sunt ex Barozzio, congruit longitudini figuræ quadragesimæ.

The Forty-first FIGURE.

The Geometrical Elevation of the foregoing Design.



HIS Upright is drawn from the foregoing Geometrical Plan; and therefore all the Parts of this Design, whose Measures are taken from *Vignola*, exactly answer those of the Fortieth Figure.



FIG. XLII.

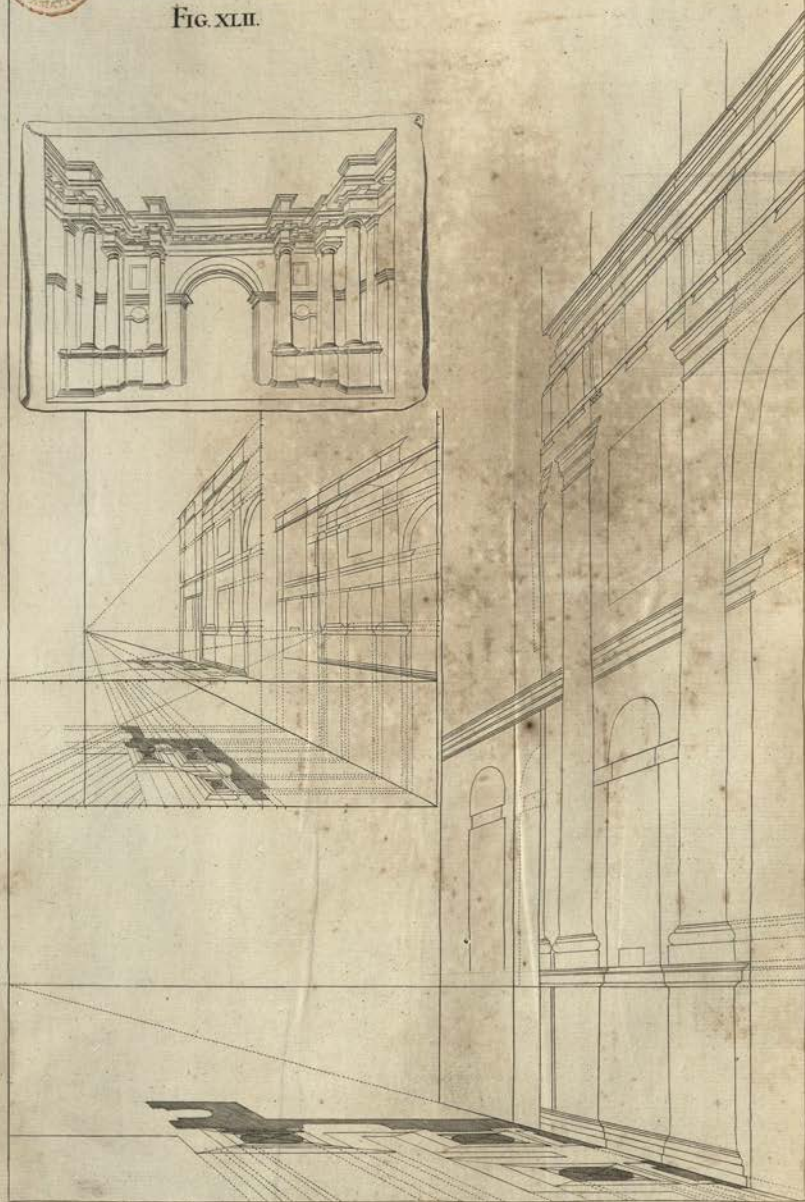


FIGURA Quadragesimasecunda.

Modus vitandi confusionem, in contractione vestigiorum, & elevationum.



CONTRACTIONES vestigii figuræ quadragesimæ, & elevationis figuræ quadragesimæ primæ, ob nimiam obliquitatem quam habent, valde confusæ sunt. Medebimur tamen incommoda ista, uti fecimus figuris decimâ, & undecimâ. Et ostendit chartula, exhibens in parvum figuram hanc quadragesimam secundam, tum quatuor sequentes:

The Forty-second FIGURE.

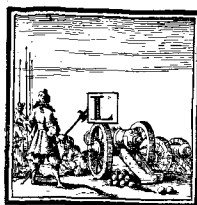
The Manner of avoiding Confusion, in reducing Plans and Elevations into Perspective.



THE Reducing into Perspective the Plan of the Fortieth Figure, and the Upright of the Forty-first Figure, would become very confus'd, thro' the great Obliquity of the Rays: We have therefore remedy'd the Inconveniences of both, by the Methods explain'd in the Tenth and Eleventh Figures. And this Plate contains in little, what is more at large describ'd in Parts, as well in this, as the four subsequent Figures.

FIGURA Quadragesimatertia.

Contractio vestigii figuræ quadagesimæ.



INEA plani multò remotior est à linea horizontali in hoc schemate, quàm in præcedenti. Ideo istud vestigium vacat omni confusione. Cætera patent ex iis quæ sæpius dicta sunt, & ex figuræ hujus inspectione. Oportet autem, rectas parallelas ad lineam plani, prolongari usque ad visualet TO, (quæ cadit extra paginam) ut adminiculo parallelarum, fiat elevatio longitudinis nostri ædificii, de qua dicemus figurâ quadagesimaquartâ.

The Forty-third FIGURE.

The Plan of the Fortieth Figure in Perspective.



Y placing the Ground-line in this, much more remote from the Horizontal, than it is in the foregoing Figure, all Confusion is here avoided. The rest is evident from what has been often said on this Head, and a bare Inspection of the Figure. Parallels of the Ground-line must nevertheless be continu'd to the Visual TO, which falls without this Page; that from them may be rais'd the Elevation of the Length of this Design, which we shall handle in the next Figure.



FIG. XLIII

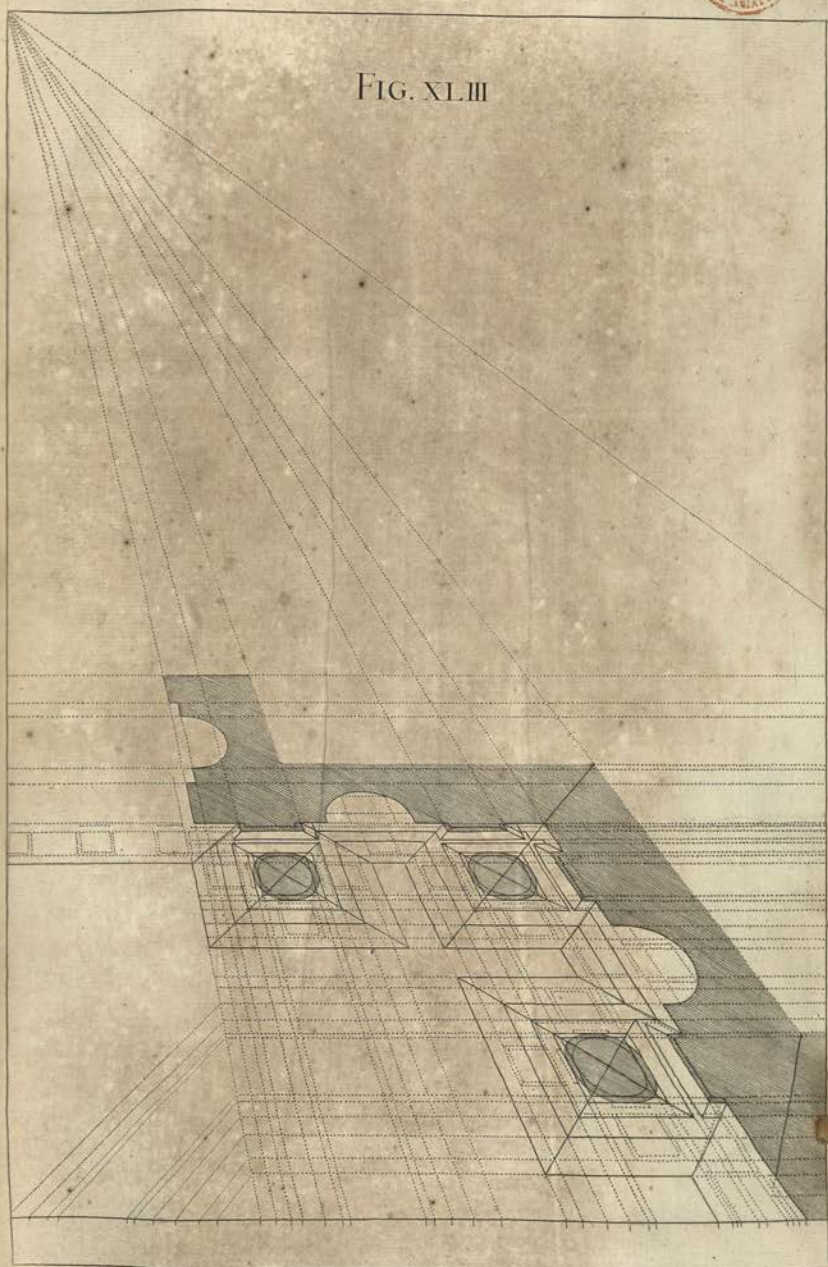
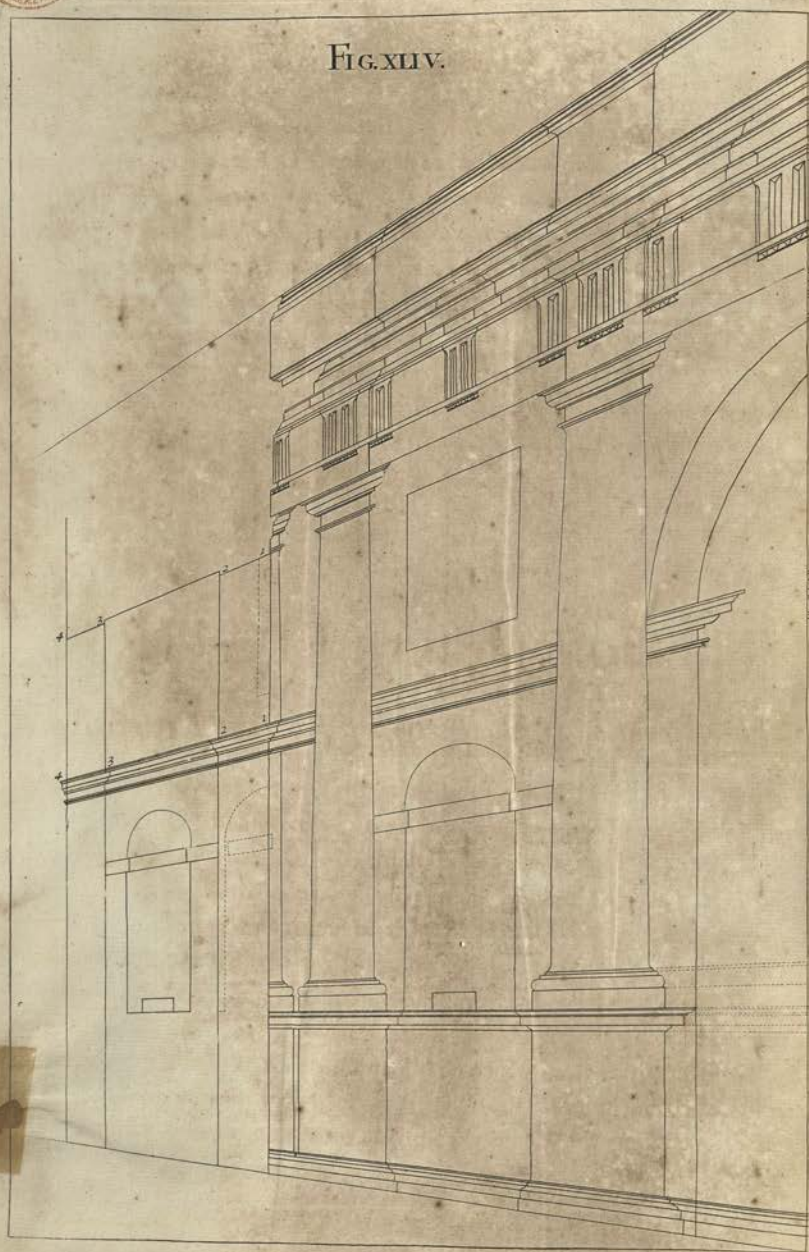


FIG. XLIV.



FIGUR A Quadragesimaquarta.

Contractio elevationis figuræ quadragesimæprimæ.



ECT Æ parallelæ ad lineam plani figuræ quadragesimætertiae, ubi pervenerint ad visualet TO, continuandæ sunt, more solito, cum parallelis ad lineam perpendicularem. In hanc autem transferre oportet omnes divisiones, quas ex Barozzio habet elevatio hujus ordinis; ac ducere visuales. Quomodo autem, adminiculo visualium & parallelarum, compleatur elevatio, constat ex figura & clariùs ex chartula figuræ quadragesimæsecundæ. Numeri 1, 2, 3, 4, geminati ostendunt centra & altitudines semiculorum seu arcuum figuræ quadragesimæquintæ; videlicet, numerus inferior designat centrum, superior verò designat altitudinem semicirculi.

The Forty-fourth FIGURE.

The Elevation of the Forty-first Figure in Perspective.



HEN the Parallels to the Ground-line in the Forty-third Figure, are prolong'd to the Visual TO, they are then, as usual, to be continu'd Parallels to the Perpendicular: On which Perpendicular, those Divisions given by *Vignola*, for the Proportion of this Order, are to be transferr'd; and Visuals drawn from them to the Point of Sight. How

by these Visuals and Parallels the Elevation is rais'd in Perspective, is manifest in part from this Figure, but more clearly from the Forty-second Figure. The Numbers 1, 2, 3, 4, which you here see doubl'd, give the Centers and Heights of Semicircles of the Arches in the Forty-fifth Figure; the lower Numbers denoting the Centers, and the upper Numbers the Heights of the Semicircles of the same.

FIGURA Quadragesimaquinta.

Dimidium ædificii DORICI optice
deformati.



UIC figuræ delineandæ plures præiverunt, ejusdemque latitudines mutuati sumus ex figura quadragesimatertia, altitudines ex quadragesimaquarta. Supereſt autem, ut lumina &

umbræ ſcitè inducantur in ſingulas partes ædificii.

The Forty-fifth FIGURE.

*One Half of the DORICK Design
in Perspective.*



THE foregoing Figures being preparatory to this, the Breadths are taken from the Forty-third, and the Heights from the Forty-fourth Figure. It only remains,

that the Lights and Shades be skilfully dispos'd to each Part of the Work.

FIG. XLV.



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FIG: XLVI.



FIGURA Quadragesimasexta.

Alterum dimidium ejusdem ædificii.



UPERSEDERE poteram delineatione alterius medietatis ædificii nostri, verum operæ non peperci, ut ostenderem diversitatem luminum & umbrarum, quæ conveniunt partibus cæteroqui omnino similibus.

The Forty-sixth FIGURE.

The other Half of the same Design.



Might very well have omitted this Half of the Design, but that I spar'd no Pains, to shew the Diversity of the Lights and Shadows, that must be given to those Parts of the Work; which in other Respects are alike.

FIGURA Quadragesimaseptima.

Vestigia ædificii IONICI.



ESTIGIUM geometricum A ædificii Ionici, sub se habet suam deformationem B. Hæc autem ut evadat distinctior, lineam plani, quæ in sequentibus figuris habebit distantiam PE ab horizontali OE, deorsum protraximus in CD, ut etiam fecimus figurâ quadagesimasecundâ & quadagesimatertiâ. Linea visualis OM eundem habet usum, quem visualis OT figuræ quadagesimateritiæ; videlicet, ut in ea terminentur parallele ad lineam plani ex membris vestigii B, eademque continuentur cum aliis parallelis ad rectam EC, pro deformandâ elevatione quam apponemus figurâ quadagesimanonâ.

The Forty-seventh FIGURE.

The Plan of an IONICK Building.



THE Geometrical Plan of this *Ionick* Work is A, underneath is its Perspective B; to render which more distinct, the Ground-line that in the following Figures has only the Distance PE from the Horizontal EO, is here remov'd downward to CD, as was done in the Forty-second and Forty-third Figures foregoing. The visual Line OM is of the same use as that of OT, in the Forty-third Figure; namely, to terminate the Lines which are drawn from the Members of the Plan B parallel to the Ground-line; from whence they are again continu'd parallel to the Perpendicular EC, for making in Perspective the Elevation inserted in the Forty-ninth Figure.

The Horizontal line
The Distance is 16. Modules without the line E.C.



FIG. XLVII.

P *The Ground line of the following Figure.*

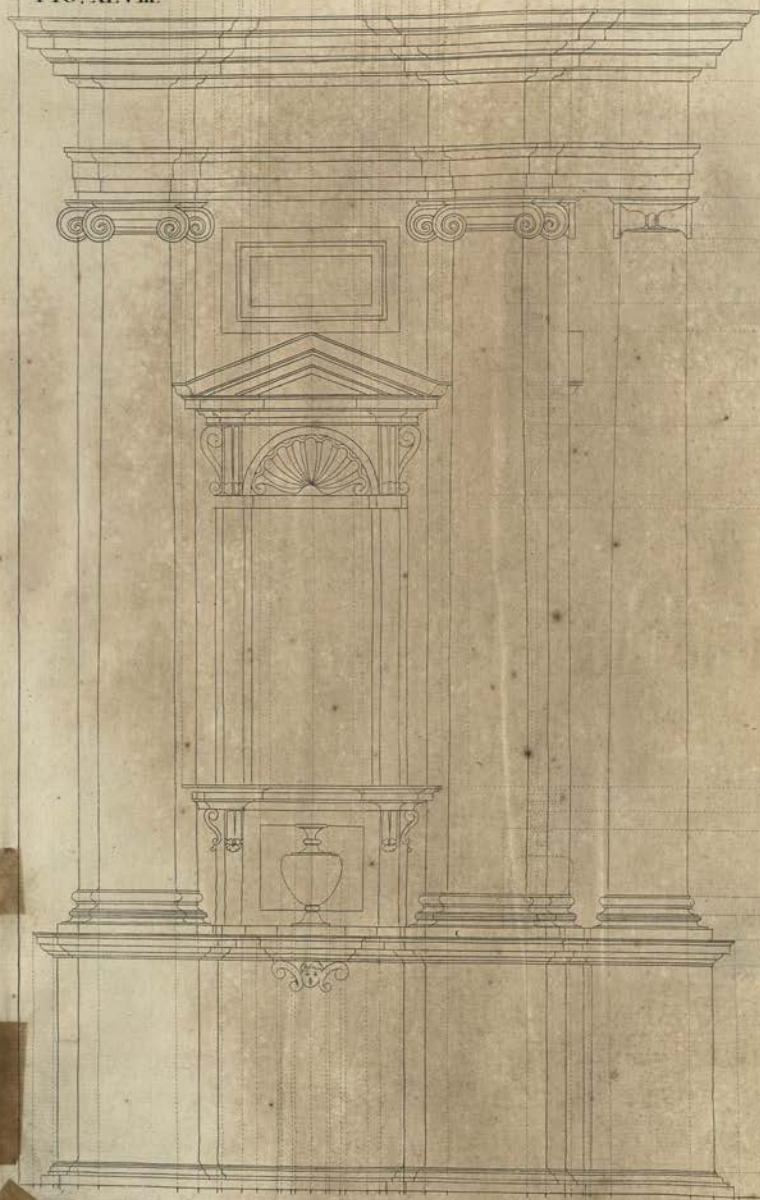
P *The Line of Interection.*

Mod. 5.

B

D C

FIG. XLVIII.



FIGUR A Quadragesima octava.

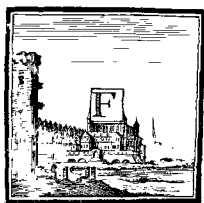
Elevatio geometrica ædificii IONICI.



X hac elevatione, quæ clarè ostendit membra totius ædificii secundum longitudinem dissecti, desumuntur altitudines ac terminationes membrorum singulorum. Peritiores tamen hac figurâ delineandâ supersedere solent, quia terminationes haberi possunt ex vestigio A figuræ quadragesimæ septimæ, altitudinis verò ponendæ iterum sunt figurâ sequenti.

The Forty-Eighth FIGURE.

The Geometrical Upright of the foregoing IONICK Design.



FROM this Figure (which distinctly shews the Composition of the whole Work, in respect of its Length) are taken the Heights and Terminations of the several Members thereof. But those that are skill'd in this Art, usually omit the delineating these Elevations; because the Terminations may be taken from the Plan A in the Forty-seventh Figure; and the Heights must be repeated in the following Figure.

FIGURA Quadragesimanona.

Deformatio Elevationis ædificii IONICI.



Æ C Figura, continens deformationem præcedentis elevationis, perficitur methodo illa, quam ostendimus figurâ quadragesimæ secundâ; nimirum, ex vestigio B figuræ quadragesimæ septimæ, ducere oportet parallelas ad lineam plani C D, quæ ubi pervenerint ad visualem OM, continuandæ sunt cum aliis parallelis ad lineam EC. Easdem parallelas in hanc figuram translatas secant visuales ex linea recta AB, in qua positæ sunt altitudines ædificii Ionici, desumpta vel ex figura præcedenti, vel ex Barozzio. Nullum autem est punctum in membris hujus elevationis, quod non inveniat per sectiones visualium ex linea AB, cum parallelis ad eandem lineam.

The Forty-ninth FIGURE.

The Elevation of the IONICK Design in Perspective.



HIS Plate containing the Perspective of the foregoing Upright, is drawn by the Method laid down in the Forty-second Figure; to wit, from the Plan B of the Forty-seventh Figure, Parallels to the Ground-line C D are prolong'd to the Visual OM; and thence are continu'd Parallels to the Perpendicular EC. These being transferr'd into this Figure, are intersected by the visual Lines that proceed from AB, which contains the Heights of this *Ionick* Composition, agreeable to the foregoing Figure, and the Rules deliver'd by *Vignola*. Now there is no Point in any Member of this Upright, but may be found by the Interfection which the visual Line from AB makes with its respective Perpendicular.

EXCISE
DUBLIN
FIG. 1.

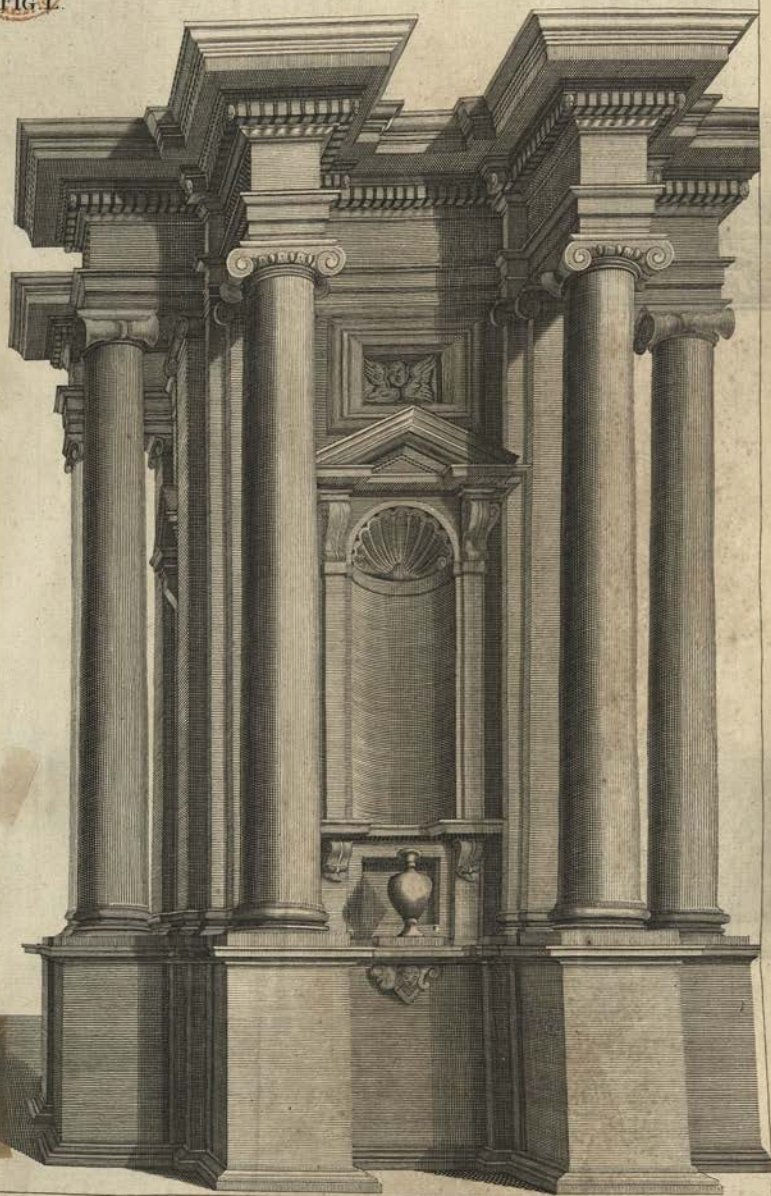


FIGURA Quinquagesima.

Architectura IONICA.



X vestigio figuræ quadragesimæseptimæ, & ex elevatione figuræ quadragesimænonæ, eruitur hoc ædificium Ionicum, quod esse poterit vel principium alicujus turris campanariæ, aut basis cujuspiam arcûs triumphalis. Vereor ut cælator suam diligentiam in hoc schemate satis probaverit. Ejus tamen errata facilè ipse deteges, & omni studio cavebis.

The Fiftieth FIGURE.

A Design of IONICK Architecture,



FROM the Plan of the Forty-seventh Figure, and from the Upright of the Forty-ninth Figure, is drawn this *Ionick* Piece; which might well serve for the lower Order of a Turret, or for part of a **Triumphal-Arch**. I fear the Engraver has not been so exact in this Scheme, as he ought; but you will readily discover his Mistakes, and carefully beware of them.

FIGURA Quinquagesima prima.

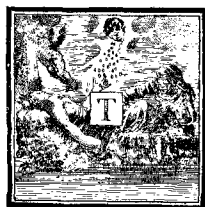
Ordo CORINTHIUS.



OMPLECTITUR hæc pagina molem contractam Ordinis Corinthii, cum suis præparationibus. Vestigium A exhibet parietem pone columnas cavum instar canalis. Idem vestigium optice deformatur in D: omiffâque elevatione geometricâ, per ejus altitudines notatas in lineâ BC projicitur elevatio; ac methodo consuetâ, ex vestigio & elevatione componitur ædificium, addito statuæ unius ornamento.

The Fifty-first FIGURE.

A CORINTHIAN Design in Perspective.



HIS Plate contains the Perspective of a Corinthian Work, with its Preparations. The Geometrical Plan A shews the Wall wrought hollow behind the Columns. The said Plan in Perspective is D: and leaving out the Geometrical Elevation, the Perspective thereof is describ'd, by transferring the Heights of the former into the Line BC. From the Perspective-Plan and Upright the Design is finish'd after the usual Manner; to which is added the Ornament of a single Statue.



FIG. LI.





FIG. I II.

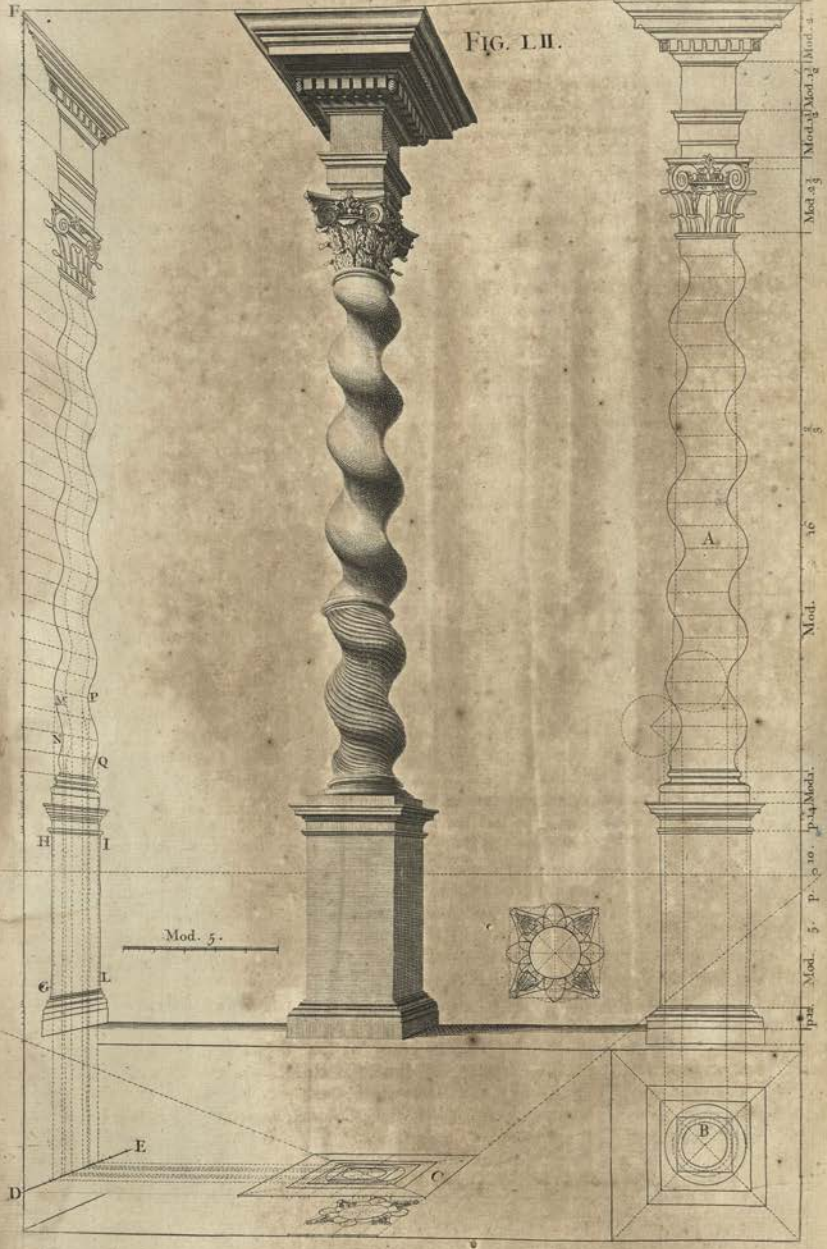


Figura Quinquagesimasecunda.

Delineatio columnæ spiralis, Ordinis COMPOSITI.



OSITA elevatione Geometrica columnæ rectæ, ac divisione illius in vigintiquatuor partes æquales, columna spiralis absolvitur per partes circumferentiæ circularum, quorum diametri sunt æquales diversis latitudinibus columnæ rectæ, ut ostendit figura in A. Ad projectionem opticam elevationis, notandæ sunt quatuor occultæ rectæ, quæ ex terminis convexitatis & concavitate infimarum spirarum ejusdem elevationis A, descendunt ac desinunt in duos circulos vestigii geometrici B. Vestigium ipsum optice imminutum habetur in C: eadem autem sunt maximæ hinc inde latitudines, tum in circulo majori, tum in convexitate infimarum columnæ spirarum; eadem sunt maximæ latitudines, tum in circulo minori, tum in concavitate ipsarum spirarum; ut dignoscas applicando regulam spiris simul & circulis. Ex quatuor punctis maximæ latitudinis duorum circularum, incipiunt quatuor lineæ parallele ad lineam plani, quæ ubi pervenerint ad visualem ED, continuandæ sunt cum parallelis ad perpendicularum DF. In eandem lineam DF, ex elevatione A transferre oportet vigintiquatuor partes æquales altitudinis columnæ, ac ducere visuales ad O punctum oculi. Per sectionem autem visualium cum prædictis quatuor parallelis ad lineam DF, ducantur lineæ undulatæ MN, PQ, ex quibus eruntur lineæ utrinque terminativæ columnæ spiralis nitidæ. Ex linea verò GH habetur facies anterior stylobatæ, columnæ & coronicis; ex linea IL habetur facies eorum posterior.

The Fifty-second FIGURE.

The Description of a wreath'd Column, of the COMPOSITE Order.

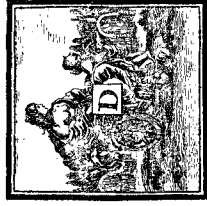


AVING made the Geometrical Elevation of a streight Column, and divided the Height of its Shaft into Four and Twenty equal Parts; the Wreathing is describ'd by Parts of the Circumference of Circles, whose Diameters are equal to the severall Breadths, or Diameters, of the streight Column; as is shewn in the Figure A. For putting the Upright into Perspective, four streight occult Lines are of use, which descend from the Extent of the Swellings and Sinkings of the lower Wreaths of the Column A; and terminate in two Circles of the Geometrical Plan B.

The said Plan laid down in Perspective is C. The utmost Extent of the greater Circle determines that of the Convex Parts of the lower Wreaths: The greatest Breadth of the lesser Circle gives that of the hollow Parts of the said Wreaths; as may be perceiv'd, by applying a Ruler from the Wreaths to the Circles of the Plan. From the Four Points of greatest Breadth in those Circles, four Lines parallel to the Ground-line are continu'd to the Visual ED, and thence again continu'd parallel to the Perpendicular DF. From the Elevation A, the four and twenty equal Parts of the Column's Height, are transferr'd into the Line DF, and Visuals drawn from each to the Point of Sight O. By the Intersections of those Visuals with the Four Perpendiculars aforesaid, are drawn the wav'd Lines MN, PQ; from which, both the Out lines of the finish'd Column are describ'd. But the Fore-part of the Pedestal, Column, and Cornice, is taken from the Line GH; the Back-part of the same from the Line IL.

Fig. Quinquages. tertia A.

Ordines Architecturæ, desumpti ex
Palladio & Scamozzio.



E Ordinibus Architecturæ,
præter Barozzium, egregiè
scripserunt Palladius & Scamozzius; ac singuli, jure
merito, suos habent æcclæ-
siæ patronos. Ut ergò, etiam juxta lauda-
tissimorum Autorum placita, opticas projectio-
nes facere possis, omnes Ordines in hac pa-
gina exhibere volui, ut in eorum Libris in-
veniantur.

The Fifty-third Figure A.

*The Orders of Architecture, taken from
Palladio and Scamozzi.*



ESIDES Vignola, Palladio
and *Scamozzi* have also
written excellently well
of the Orders of Archi-
tecture; and each of 'em
have deservedly their Followers and Ad-
mirers. That you might therefore be
enabl'd to make Designs in Perspective,
after the Proportions of the most cele-
brated Masters, I have in this Plate given
you the Measures of all the Orders, as
deliver'd by them in their Books.

FIG. III. B.

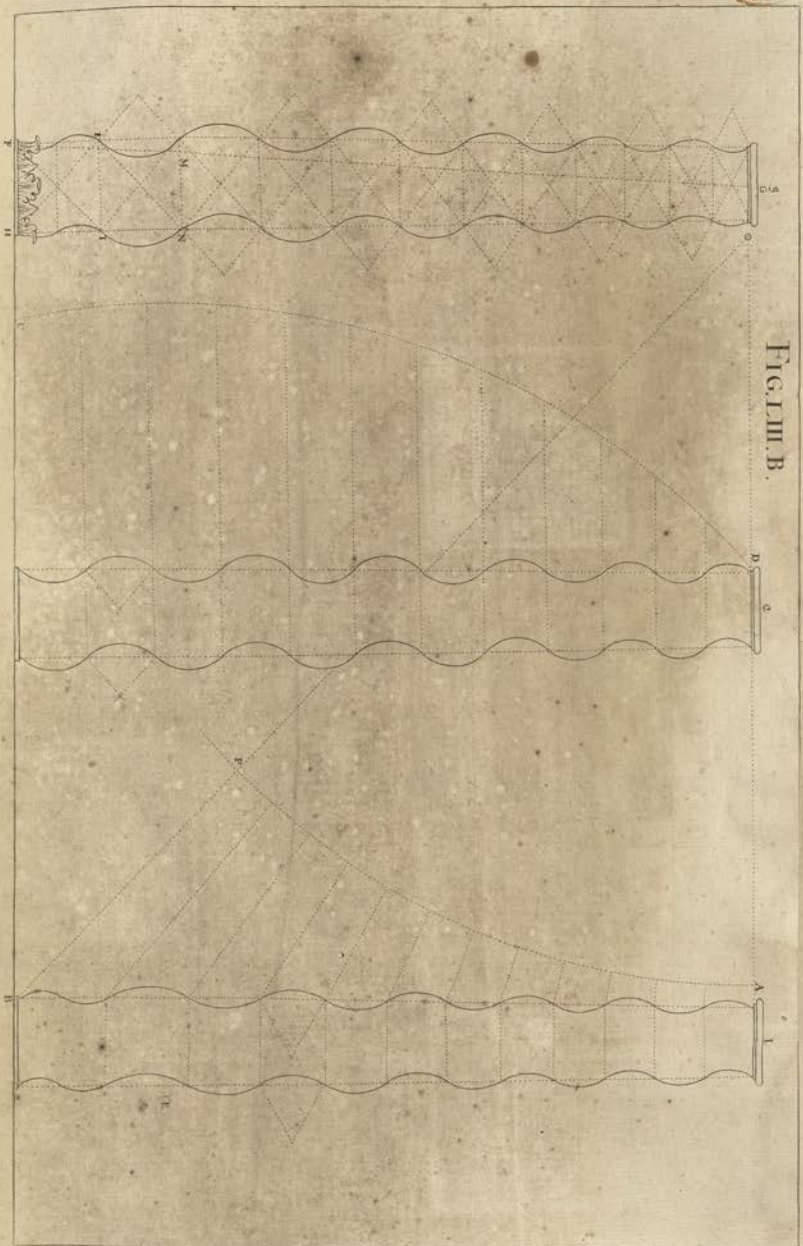


FIG. I, III, A

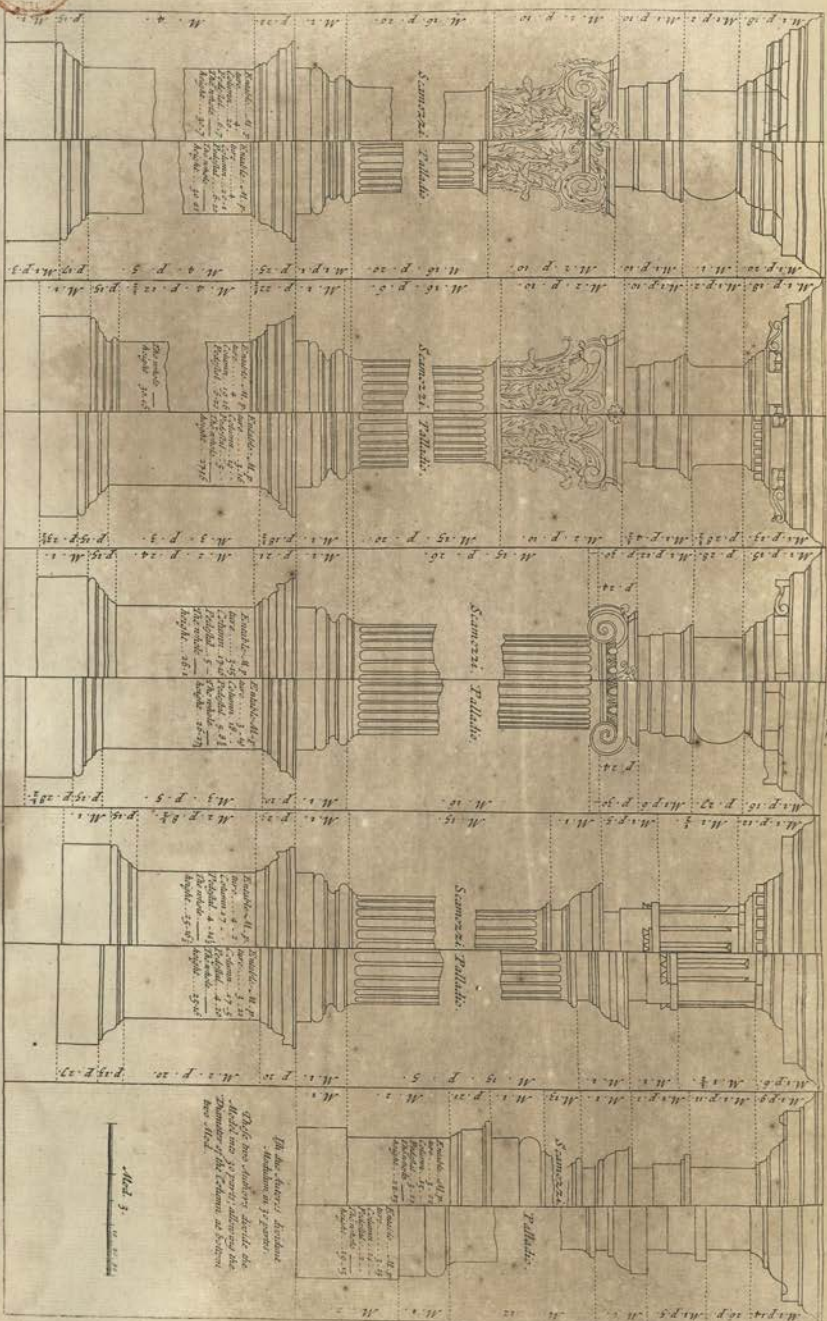


Fig. Quinquagel. tertia B.

Modus triplex delineandi columnas spirales.



OLUMNE figure superioris caret ea communitate, quæ prædictæ sunt columnæ spirales æneæ celeberrimi Equitis Bernini ad sepulchrum S. Petri in Vaticano. Illaque methodum triplicem exhibeo ad minuenda spatia totius altitudinis columnæ.

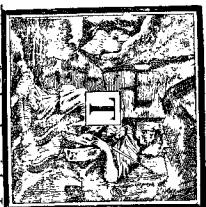
1. Recta OA fit æqualis altitudini AB columnæ. Fiat autem recta OB, & arcus AP ex centro O, drorsus in partes duodecim æquales, ducendo rectas, quæ per puncta drorsum deficiunt in columnam rectam; ac demum, sicut parallele ad basim. Spatia inter has parallelas dabunt aperturam circini pro triangulis æquilateralis & pro spiris, ut ostendit columnia 1.

2. Translatâ in C tertiâ parte altitudinis columnæ ab eius imo scapo, habeat circinus aperturam CD, ac posito uno ejus crure prius in D, postea in C, sicut alio parvi arcus ad E: sectio illorum arcuum erit centrum arcus DC, quem oportet dividere in duodecim partes æquales, & ex punctis drorsum ducere parallelas ad basim. Tum spaciis inter parallelas drorsus in quatuor partes æquales, tres ex illis partibus dabunt longitudinem curvæ pro triangulis isoscelibus; vertices autem triangulorum erunt centra singularum spirarum, ut ostendit columnia 2.

3. Ductâ ex medio summariatis G rectâ GF, spatium HE transferatur in I, & fiat recta IL parallela ad basim HF, spatium IL transferatur in N, ac fiat NM, & sic deinceps. In parvis columnis triangula sine sensibili errore duci possunt per diagonales: in columnis tamen grandioribus, alterutrum ex modis antea explicatis adhibere necesse est.

The Fifty-third Figure B.

Three different Ways of delineating wreath'd Columns.



THE wreath'd Columns describ'd in the Fifty-second Figure, being divided into Twenty-four equal Parts, want very much of that Elegancy of Contour, which is visible in those bras Pillars, made by the famous Cavalier Bernini, for S. Peter's Sepulcher in the Vatican. Wherefore I here lay before you three several Ways of diminishing the Spaces thro' the whole Height of the Column.

1. Make the right Line OA equal to AB the Height of the Column; then draw the Line OB, and on the Center O describe at pleasure the Arch AP, which divide into twelve equal Parts, and by the Divisions draw straight Lines from the Center O to the Line of the Column; and lastly continue the same Parallels to the Base. The Spaces between these Parallels, shall be the Sides of equilateral Triangles, wherewith you are to describe the Wreath of the Column, as is seen in Column 1.

2. Having set the third Part of the Column's Height, from the Bottom of the Shaft to the Point C; with the Interval CD, from the Centers D and C, describe the Parts of Arches intersecting at E. On the Center E, with the same Interval, describe the Arch DC, which divide into twelve equal Parts; and from the Points of those Divisions, draw Parallels to the Base. Then dividing each Space between the Parallels into four equal Parts; three of those Parts shall be the Sides of the Parallels Triangle; whole Vertex is the Center whereto to describe each Wreath of Column 2.

3. Having drawn from the middle of the Column's top G, the Line GF, make HI equal to IL, and draw IL parallel to the Base HF: Again, make IN equal to IL, and draw NM also parallel, and so on. In small Pillars, the Centers of the Diagonals of these Spaces may, without sensible Error, serve for describing the Wreaths; but in greater Columns, either of the other two Methods is rather to be chosen.

FIGURA Quinquagesimaquarta.

Vestigia ædificii Ordinis CORINTHII.



ESCRIPTURE ædificium Corinthium octangulare, ponimus hic vestigia unius ex quatuor partibus pilarum, quibus imponetur fornix in modum tholi, ut constabit in figura quinquagesima octava. Ad faciliorem descriptionem, in parte inferiori paginae posui vestigium geometricum stylobatæ, in superiori vestigium geometricum coronicis, cum latitudinibus & longitudinibus membrorum singulorum; ut eas transferendo in lineam plani more consueti, utrumque vestigium optice deformetur. Ad vitandam confusionem, prius notare oportebit puncta quæ spectant ad membra propinquiora solido parieti, deinde alia.

The Fifty-fourth FIGURE.

The Plan of the Design of the CORINTHIAN Order.



BEING to describe an Octangular Corinthian Work, I have here inserted the Plan of one Quarter of the Composition; which is vaulted in form of a *Cupola*, as is seen in the Fifty-eighth Figure. To render the Plan less confus'd, I have, in the lower part of the Plate, given the Geometrical Plan of the Pedestal; and in the upper part, that of the Cornice; with the Breadths and Lengths of each Member: so that by transferring the same into the Ground-line, after the usual manner, you delineate each Plan in Perspective. For avoiding Confusion, 'twill be requisite first, to transfer the Points of those Members that are next the Solidity of the Wall; and then proceed to others.

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LIBRARY

FIG. LIV.

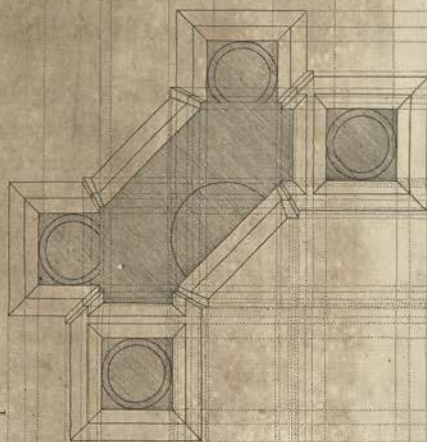
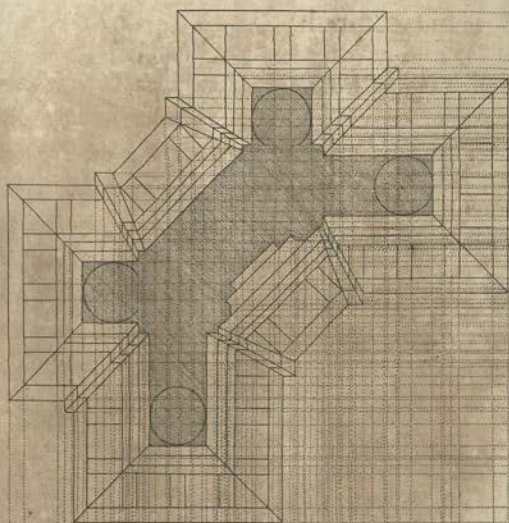




FIG. LV.

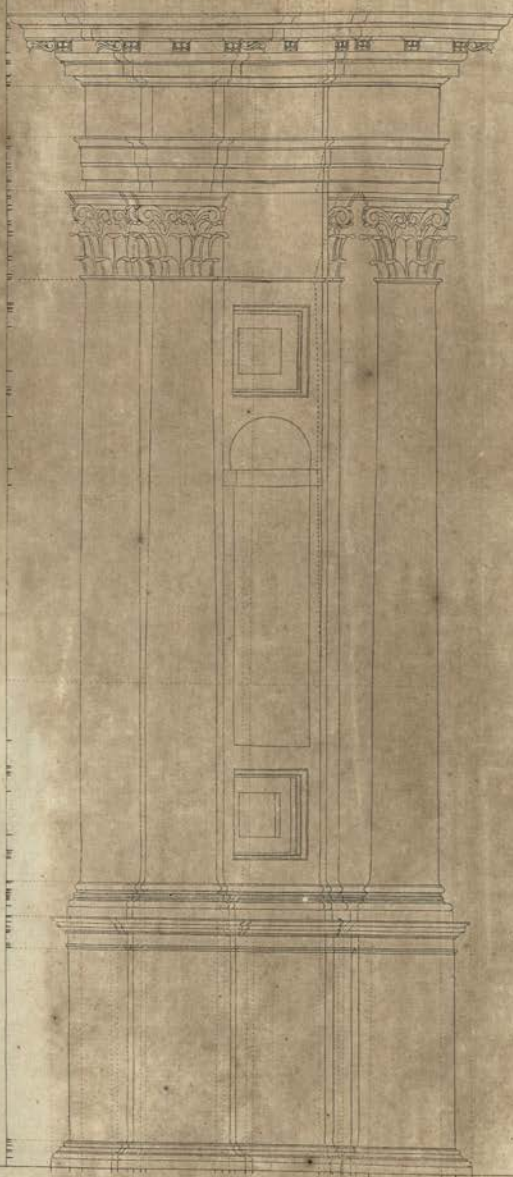


FIGURA Quinquagesimaquinta.

Elevatio ædificii Ordinis CORINTHII.



LEVATIO geometrica ædificii octangularis congruit cum duobus ejus vestigiis figuræ antecedentis. Quia verò elevatio parietis abscondit secundam ex quatuor columnis, eademque in ædificio deformato conspicua futura est; iccirco eam lineis occultis designare oportuit.

The Fifty-fifth FIGURE.

The Geometrical Elevation of a CORINTHIAN Work.



THE Geometrical Elevation of this Octangular Design, is wholly correspondent to the two Plans of the foregoing Figure : But because the Wall in this Upright takes off the Sight from the second of the four Columns, which is notwithstanding visible in the finish'd Perspective that follows ; 'tis requisite to delineate the same with occult Lines, as in the Figure.

FIGURA Quinquagesimasexta.

Deformatio Vestigiorum & elevationis ædificii CORINTHII.



N hac Figurâ, lineam plani coincidere volui cum linea horizontis. Itaque videri non posset vestigium inferius, nisi ut alias deorsum protraxi lineam plani, hic è converso sursum promovissem lineam horizontis, quam constitui mediam inter lineas plani utriusque vestigii, ut ambæ projectiones essent æquè distinctæ. In elevatione, columna secunda, quam, ut dixi, paries abscondit, lineis occultis designanda est.

The Fifty-sixth FIGURE.

The Perspective Plans and Upright of the CORINTHIAN Design foregoing.



IN this Figure, I have made the Ground-line coincident with that of the Horizon, in which case the lower Plan can't be seen, unless the Ground-line be sunk lower, as before intimated; or contrariwise, the Point of Sight rais'd higher, as I have here done, keeping it in the midst between the Ground-lines of the two Plans, that the Perspective of both might be equally distinct. In the Elevation, the second Column, which I mention'd to be hidden by the Wall, should be design'd with occult Lines.

FIG. LVI.

BRASS
OFFICE
STAMP

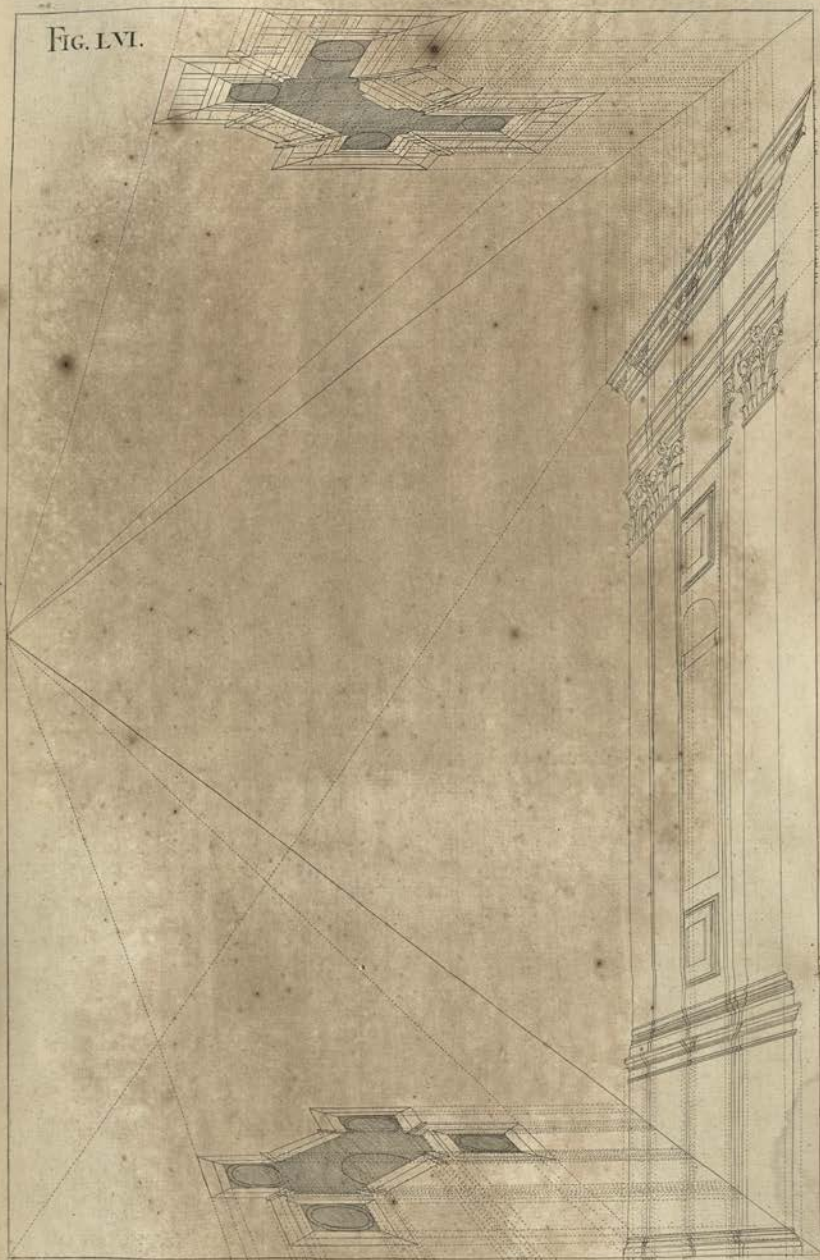




FIG. LVII.

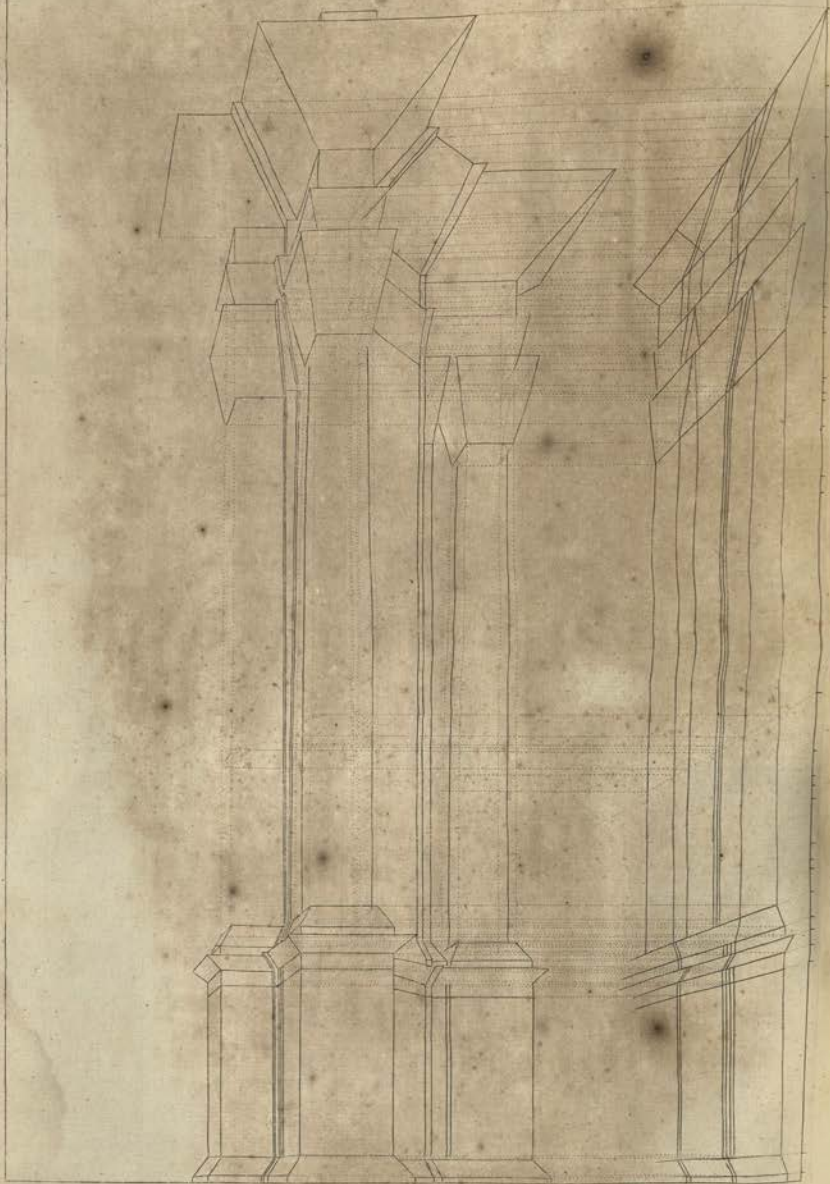


FIGURA Quinquagesima septima.

Adumbratio Figuræ sequentis.



IGURAM hanc seorsim delineavi, ut videas quomodo facienda sit operis totius adumbratio, accipiendo altitudines membrorum singulorum ex elevatione; latitudines & longitudo ex vestigiis. Quæ omnia ex diagrammatis inspectione clarissimè apparent.

The Fifty-seventh FIGURE.

The rough Draught of the following Figure.



Have drawn this Figure apart, that you may see the Manner of describing the Out-line of the whole Work, by taking the Heights of the several Members from the Elevation, and their Breadths and Lengths from the Plans; all which is very plain, upon Inspection of the Figure.

FIGURA Quinquagesima octava.

Ædificium Ordinis CORINTHII
Octangulare.



UCUSQUE descripsimus pilas anticas sinistras ædificii Corinthii. En hoc loco medietatem dexteram totius Operis. Integrum verò ædificium habebis figurâ sexagesimâ.

The Fifty-eighth FIGURE.

*Part of an Octangular Work of the
CORINTHIAN Order.*



ITHERTO the nearest Left-hand Quarter of this *Corinthian* Design has been describ'd. In this Plate you have the Right-hand Half of the whole Work; and in the Sixtieth Figure, the entire

Perspective compleat.

FIG. LVIII.



FIG. LIX.

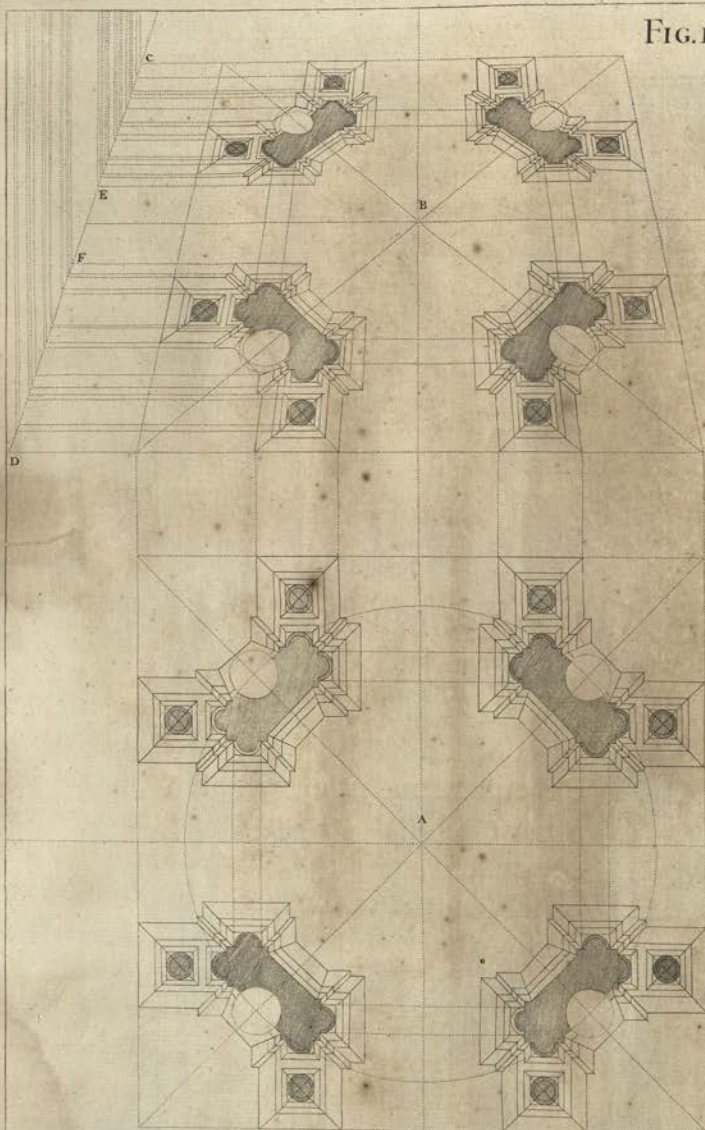


FIGURA Quinquagesimanona.

Vestigia Tabernaculi octangularis.



PROJECTIONES rerum octangularium sunt quadratis difficiliore: idè in eis explicandis diligentia non peperci. Moles cujus vestigia vides in A & B, convenit in multis cum ea quam ereximus figura quinquagesima-octava. Visualis CD recipit sectiones perpendicularium, quæ deserviunt pro elevatione figuræ sequentis, ut sæpius dictum est. Si facies interior delineanda sit seorsim à facie anteriori, illam perficies ope linearum CE, istam ope linearum FD.

The Fifty-ninth FIGURE.

The Plans of an Octangular Tabernacle.



OCTANGULAR Figures being more difficult to be put in Perspective, than the Square; I shall use my best Endeavours to render the Method as plain as possible. The Composition whose Plans you see in A and B, has much Affinity with that describ'd in the Fifty-Eighth Figure. The Visual CD receives the Sections, from which Perpendiculars are rais'd for the Elevation and Profile of the following Figure, as has been often said. If you would delineate the Back-part separate from the Fore-part, you may do the former by means of the Line CE, and the latter by that of FD.

FIGURA Sexagesima.

Tabernaculum octangulare.



OC tabernaculo aliquoties usus fui pro expositione quadraginta horarum. Si colores scite inducti fuerint in duos ordines telariorum, resectis omnibus quæ ad molem ipsam non pertinent, spectatoribus imponet, & solida videbitur. Oportebit autem exemplar externæ faciei eruere ex parte DF vestigii & elevationis; exemplar interioris faciei eruere ex parte EC, servando in omnibus regulas quas hucusque tradidimus.

The Sixtieth FIGURE.

An Octangular Tabernacle in Perspective.



Have sometimes made use of this Tabernacle for the Exposition of the *Forty Hours*. If the Colours are laid by a skilful Hand, on two Ranges of Cloth, and the Frame cut away according to the Out-line of the Work, they will wonderfully deceive the Eye, and appear as solid; but then the outer Range must be drawn after the Plan and Elevation of the Part DF in the foregoing Figure; and the inner Range after that of EC; in all things observing the Rules hitherto delivered.

PAID BY
MR. J. S.
BUTLER
OF
GOSWORTHY



A
TREATISE
of the
FIVE ORDERS
OF
Columns
in
ARCHITECTURE
viz.
Toscan,
Doric, Ionic,
CORINTHIAN
and
Composite.
Written in French by
Claude Perrault,
Made English by
JOHN JAMES
of Greenwich.



FIG. LXI.

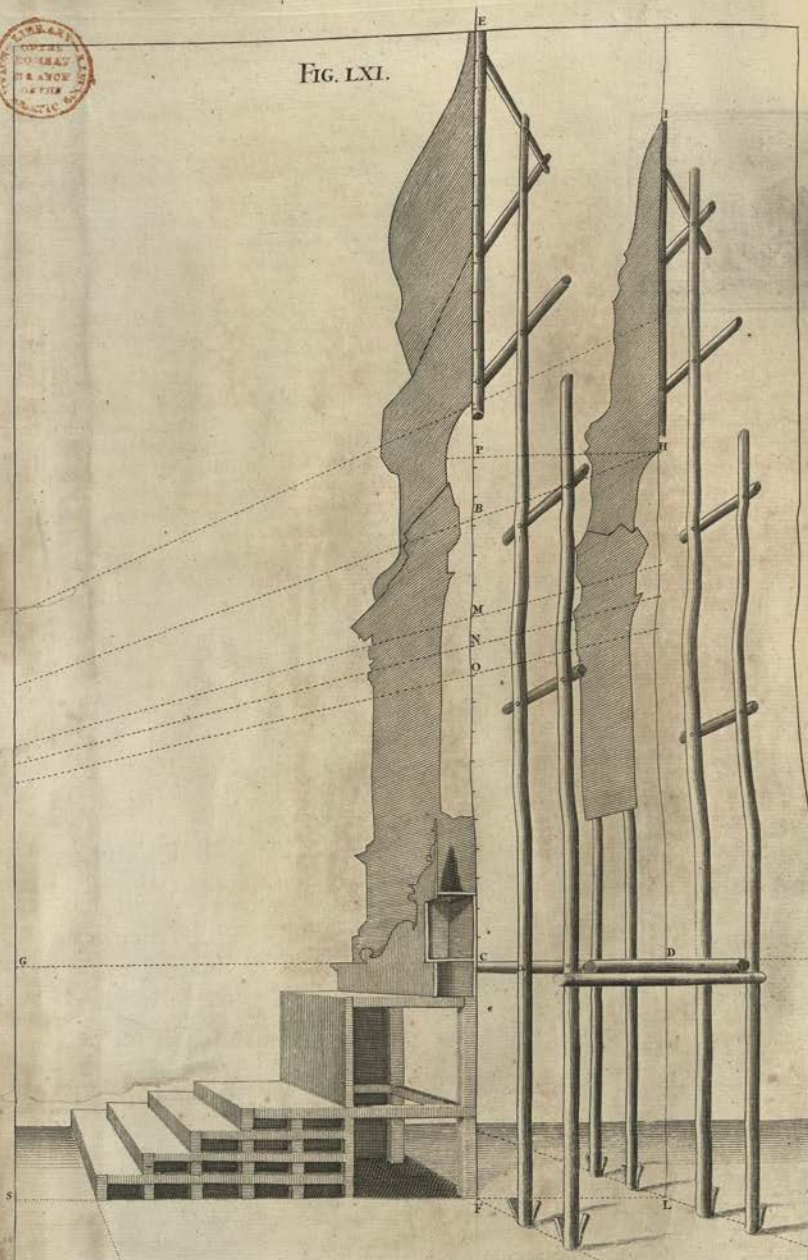


FIGURA Sexagesimaprima.

Modus erigendi machinas, quæ constat pluribus ordinibus telariorum.

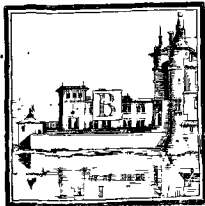


X figura inspectione addisces modum erigendi machinas quæ constat pluribus ordinibus telariorum. Tabernaculum hoc nostrum indiget duobus tantum ordinibus; nam telaria propinquiora oculo expriment faciem externam, remotiora exhibent faciem internam. Ne autem lateant stipites quibus telaria sustentur, medietatem telariorum adumbrare omisimus. Recta LS est linea plani, recta DG est linea horizontalis; ac punctum distantie quod cadit extra paginam in recta CG prolongatâ, debet esse remotum à puncto C, quantum in superiori parte figuræ quinquagesimæ nonæ, punctum distantie est remotum à puncto oculi. Eadem horizontalis DG secatur normaliter in C. à recta EF, quæ est sectio externæ faciei tabernaculi, & ex C incipiunt divisiones in partes æquales pro reticulatione anterioris faciei telariorum, ut dicemus figurâ sexagesimâ secundâ. Recta IL quæ est sectio internæ faciei tabernaculi, distat ad libitum à recta EF cui est parallela. Porro, per divisiones rectæ EF (ut vides in M, N, O) ex puncto distantie ducendæ sunt visuales ad rectam IL pro reticulatione aliorum telariorum: distantia enim DC facit ut angere oporteat ea quæ in telariis pinguntur, alioquin iusto minora viderentur. Atque hinc dignosces, cur arcus qui in telariis anterioribus pertingeret solum ad B, in posterioribus eleuetur usque ad H.

Figura sequenti proponemus modum delineandi faciem internam telariorum, adhibita reticulatione externæ faciei: ad intelligentiam verò illius methodi, fiat in hac figurâ recta HP parallela ad DC, ac recta BC dividatur in totidem partes æquales, in quot partes divisa fuerit recta PC.

The Sixty-first FIGURE.

The Manner of erecting Machines, that consist of several Ranges of Frames.



Y casting your Eye on the Figure, you'll readily apprehend the Manner of erecting the several Ranges of Frames. This Tabernacle last describ'd needs only two of them; the Frame next the Eye represents the outer Face, and the hinder Frame the inner Face thereof. I have here describ'd but the Half-Breadth of the said Frames, that you might have a Sight of the Poles and Braces which support them. The Line LS is the Line of the Plan, or Ground-line; the Line DG is that of the Horizon; and the Point of Distance, which falls without the Page CG prolong'd, is as far from the Point C, as the Point of Distance is from the Point of Sight

in the upper Part of the Fifty-ninth Figure. The Horizontal DG is cut perpendicularly in C by the Line EF, which is the Section of the outer Face of the Tabernacle; and from the Point C begin the equal Divisions for the Net-work of the foremost Frame, as is shewn in the Sixty-second Figure. The Line IL, which is the Section of the inner Face of the Tabernacle, may at pleasure be set nearer or farther from the Line EF, to which it is parallel. By the Divisions of the Line EF (as M, N, O) Lines are drawn from the Point of Distance to the Perpendicular IL, for the Net-work of that Frame; for the Distance DC obliges the Parts of D to be painted larger, otherwise they will appear less than they really ought. And from hence you may discern, why the Arch, which in the foremost Frame would reach only to B, does in the hindmost rise up to H.

In the following Figure is shewn the Manner of delineating the inner Frame, from the Net-work of the outer Face; for the better understanding of which, make the Line HP in this Figure parallel to DC, and let the Line BC be divided into as many equal Parts, as the Line PC was.

FIGURA Sexagesima secunda.

De reticulandis telariis, quæ repræsentent ædificia solida.



VO exemplaria tabernaculi quæ seorsim delineanda sunt, conjunctim habes in A. Utrisque deservit eadem reticulatio, quam suis numeris insignivimus. Postquam ergo designaveris amplitudinem totius ædificii, cum proportionem ad ipsam reticulabis pavementum B aule cujuspiam quod capiat rem totam, ascriptis eisdem numeris quos habet exemplar: ejusque retis ope, ducentur in pavimento lineæ terminativæ totidem membrorum, quot futura sunt telaria experientia faciem externam tabernaculi. Vbi hæc parata fuerint, singula disponuntur exactè suis locis in ipsomet pavimento; ac funiculis colore nigro imbutis, repetetur in telariis eadem reticulatio, additis ad libitum pluribus visualibus; quarum adjumento idem seorsim pinguntur telaria, duci queant rectæ tendentes ad punctum oculi seu perspectivæ. Alia quoque reticulatio super pavimento necessaria est pro internâ facie tabernaculi; ac duæ reticulationes pavimenti eam inter se proportionem habebunt, quam habent divisiones rectarum IL, EF, figura sexagesima prima. Hujus retis

ductu fient lineæ terminativæ telariorum cum reliquis, ut jam indicavimus.

Juxta hanc methodum nequeunt duci lineæ terminativæ interioris faciei, nisi fiat in pavimento aliud rete delicto priori, quod esset valde laboriosum. Postquam ergo ex vestigio figuræ quinquagesimæ nonæ eruta sint duo exemplaria, in exemplar faciei externæ transferatur recta PC figura sexagesima prima, in exemplar faciei internæ transferatur recta BC. Si autem recta PC divisa fuerit in quindecim partes æquales, dividetur BC in quindecim partes æquales, atque ope harum divisionum reticulare oportebit utrumque exemplar. Porro licet quadrata in reti exemplaris faciei externæ sint majora quadratis exemplaris internæ faciei, nihilominus idem rete pavimenti deserviet pro ducendis lineis terminativis utriusque faciei. Quæ dicta sunt de duobus exemplaribus, valent de aliis quocunque. Exempli gratiâ; si construere placeat quinque ordines telariorum, fient quinque exemplaria in papyro. Si in omnibus exemplaribus usurpetur eadem reticulatio, in pavimento facere oportet quinque diversas reticulationes. Si autem in exemplaribus fiant quinque diversæ reticulationes, in pavimento sufficit una reticulatio.

Curandum est ut singula retis quadrata in telariis sint exacta, omnesque illorum anguli sint recti. Modus expeditissimus faciendi rectos est hujusmodi. Posito uno cruce circini in puncto F lineæ rectæ EF, alioque cruce posito ubilibet in O, fiet circulus GFI, & ex puncto G diameter GL. Si recta HF transeat per puncta I & F, est normalis ad EF.

The Sixty-second FIGURE.

Of making the Net-work on Frames, for representing the Architecture as solid.



O U have jointly in A, the two Designs of a Tabernacle, which are to be drawn separately; the same Net-work serving for both, which is also mark'd with Numbers. When you have therefore resolv'd on the Size of your Work, on the Pavement of some Room capacious enough, make a Net-work answerable, and affix thereto the Numbers, as in your Copy: By the Help of which, you may on the Pavement describe the Out-lines of all those Members that are requisite to the outer Frame of the Tabernacle. This being done, let the Frame be laid exactly in its place on the said Pavement, and with a black Line strike thereon the same Net-work; adding as many Visual Lines as you please, which will be of Use for drawing Lines to the Point of Sight, when you come to paint the Frames asunder. Another Net-work on the Pavement is also necessary for the inner Face of the Tabernacle, which should bear such Proportion to this, as the Divisions of the Line IL do to those of EF in the Sixty-first

Figure, and by this means the Out-lines of the inner Frame, &c. may be drawn, as has been shewn already.

Thus the Out-lines of the inner Face can't be describ'd, without rubbing out the first Net-work, and making a second on the Pavement; which wou'd be very troublesome. Wherefore, from the Plan of the Fifty-ninth Figure, take the two Designs, and transfer the Line PC of the Sixty-first Figure on the outer Face, and the Line BC on the inner Face. Then if PC be divided into fifteen equal Parts, BC shall be divided in the same manner, and by these Divisions make the Net-work on each Design. And altho' the Squares of the outer Face be larger than those of the inner one, the same Net-work may nevertheless serve for giving the Out-lines of both. What has been said of these two Designs may be understood of many. For Instance, if five Ranges of Frames were requir'd, five Designs must be made in Paper. If in all the Designs the same Net-work be us'd, then five several Net-works must be made on the Pavement; but if the Designs have five different, then one Net-work on the Pavement will suffice.

You must be very careful that all the Squares of the Net-work be exactly divided, and at right Angles. The ready way of making a right Angle is thus: Placing one Foot of the Compasses in the Point F of the Line EF, and the other at pleasure in O, describe the Circle GFI; and from the Point G draw the Diameter GL. The Line FH drawn by the Points F I, shall be perpendicular to FE.

OFFICE
DU
GÉNÉRAL
DE
L'ARTILLERIE
ET
DU
GÉNIE

FIG. LXII.

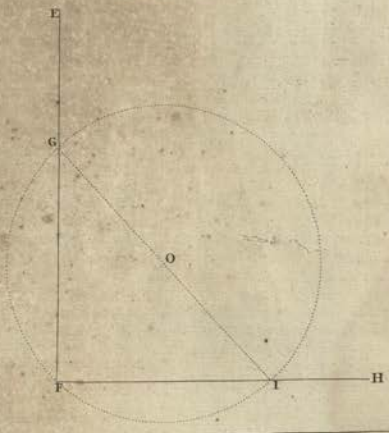
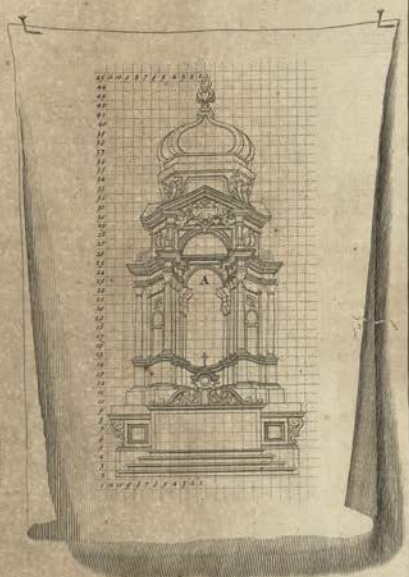
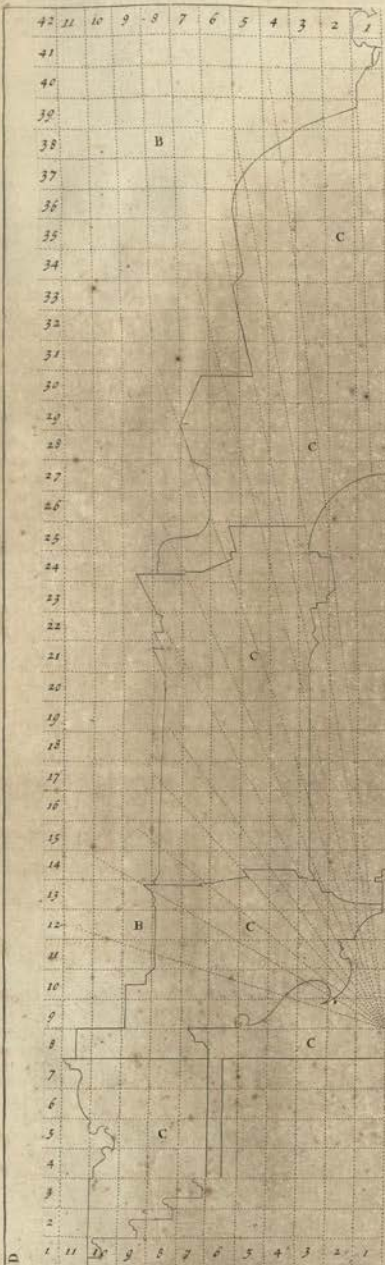


FIG. LXIII.

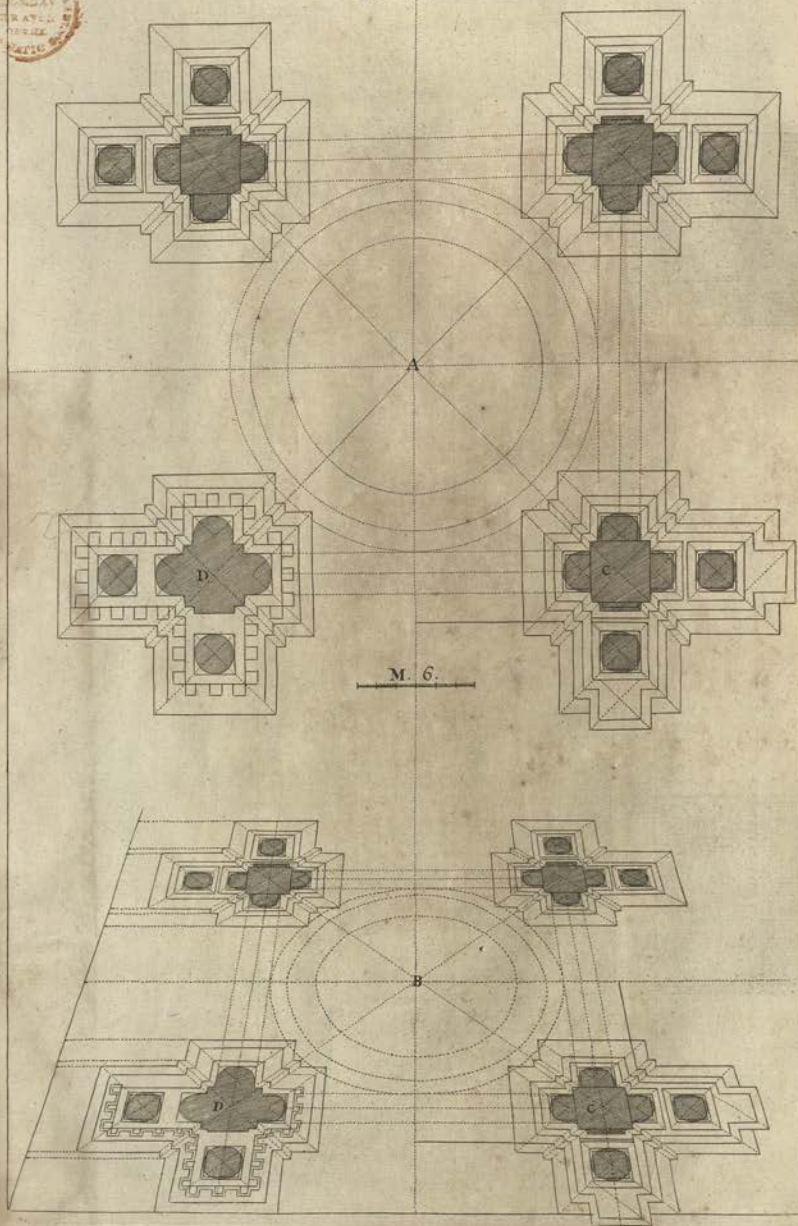


FIGURA Sexagesimatertia.

Vestigia ædificii quadrati.



ESTIGIUM geometricum A hujus ædificii habet in B suam deformationem. Discrimen inter pilas C & D oritur ex eo, quòd in C posita sint vestigia stylobatarum, in D autem posita sint vestigia coronicum.

The Sixty-third FIGURE.

The Plan of a Square Design.



THE Geometrical Plan of this Design. A, is brought into Perspective in B. The Difference between the Parts C and D arises from hence, that the Plan of the Pedestals is plac'd in C, and that of the Cornice in D.

FIGURA Sexagesimaquarta.

Ædificium quadratum.



X deformatione vestigii & elevationis, methodo consuetâ eruitur imago totius ædificii, quæ potest esse exemplar aræ maximæ alicujus Ecclesie. Hanc machinam, non sine communi approbatione, aliquoties adhibui, in apparatu quadraginta horarum; locum in medio vacuum occupantibus Angelis cum nubibus, additâ figurarum aliquot copiâ in parte inferiori. Modus faciendi in telariis remotioribus ab oculo partem tholi rotundi quam hic vides, deducitur ex iis quæ tradidimus in projectione circularum.

The Sixty-fourth FIGURE.

A Square Design in Perspective.



FROM the Plan and Upright in Perspective, this finish'd Piece of the whole Work is delineated after the usual Manner, and may serve for the Design of a great Altar in a Church. I have sometimes, for the Solemnity of the *Forty Hours*, expos'd this painted on a Machine, with an universal Satisfaction; Angels with Clouds possessing the higher part of the Hemisphere within, and Groups of Figures the lower part. The Manner of designing on the inner Frame, that part of the said *Cupola* which you here see, is deduc'd from what has been before said of putting Circles into Perspective.

FIG. LXIV.





FIG. LXV.

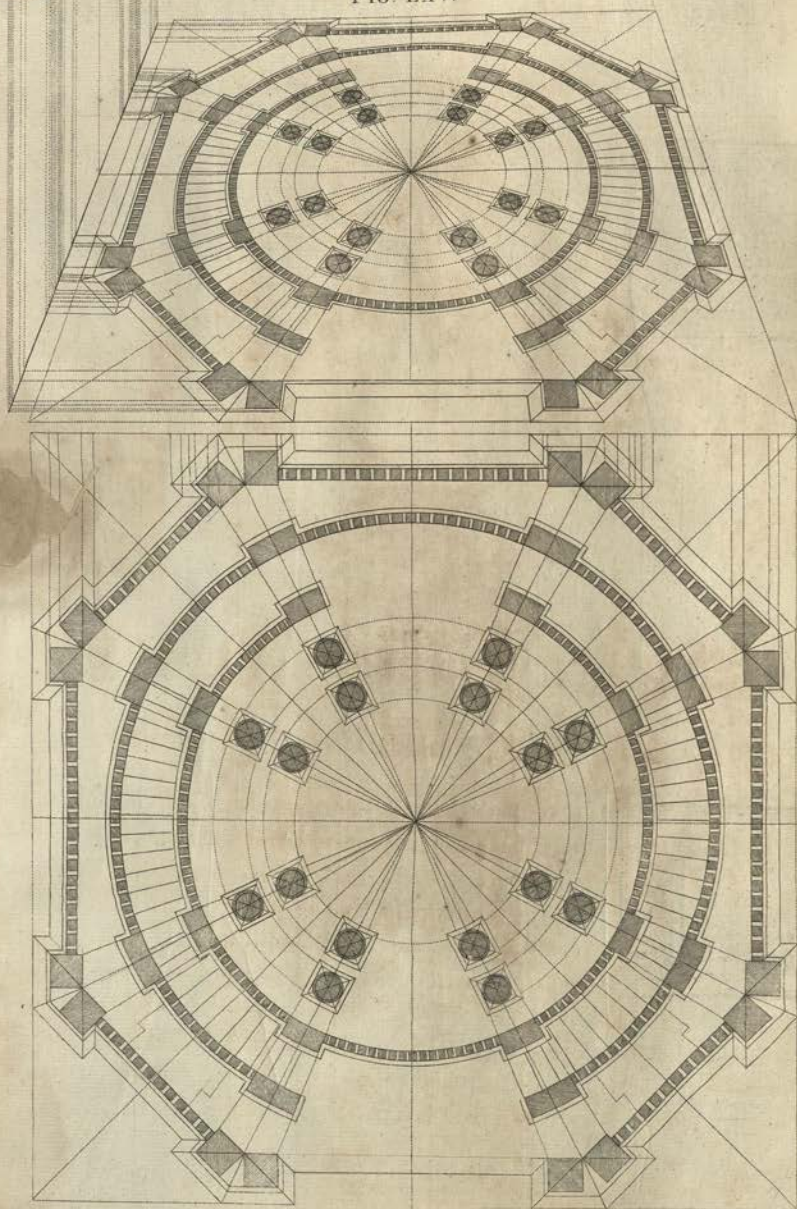


FIGURA Sexagesimaquinta.

Vestigium ædificii rotundi optice imminutum.



UI sedulam operam in circulis deformandis non posuerint, eosque minimo negotio ex usu describere nequiverint, frustra conabuntur projicere vestigia ædificiorum rotundorum. Ad vitandam confusionem, proderit in vestigio notare primum lineas occultas membrorum præcipuorum; iisque translatis in elevationem, addere sensum reliquas. Hac industria ego ipse in hoc schemate usus sum. Quum autem experimento didicerim summam arduitatem harum descriptionum, aliam regulam adhibere jamdiu cæpi, quam, ut supra diximus, in aliud Opus reservamus.

The Sixty-fifth FIGURE.

The Plan of a Circular Work in Perspective.



HEY that have not diligently apply'd themselves to the putting Circles into Perspective, and, by a constant Practice, render'd the Work familiar to them, will in vain attempt that of the Plans of round Buildings. To prevent Confusion, you'll do well, first to mark the occult Lines of the principal Members; and after those are transferr'd into the Upright, then proceed to the rest, as I my self did in this Figure. But having found by Experience, the great Difficulty of describing these round things, I have long since made use of another Method, which, as I said before, is reserv'd for another Volume.

FIGURA Sexagesimasexta.

Projectio ædificii rotundi.



IRIFICE oculis imponunt imagines rerum rotundarum, si omnibus reſectis quæ ad eas non pertinent, exactè delineatæ ac depictæ fuerint. Hanc figuram ex veſtigio eruere oportebit methodo conſuetâ, eamque in Templo S. Ignatii Collegii Romani conſtruxi, pro feria V. & VI. Hebdomadæ ſanctioris. Intra arcum, ſuper altari, locus erat urnæ ſepulchrali, cum Venerabili Sacramento. Sub altari viſebatur ſimulacrum Chriſti Domini è Cruce depoſiti: in medio columnarum, imago Beatæ Virginis dolentis; ſuper balauſtiis Angeli lugentes, cum inſtrumentis cruciatuum Salvatoris.

The Sixty-sixth FIGURE.

A Circular Deſign in Perspective.



THE Appearance of round things, if well deſign'd, maſterly painted, and the Frame cut away to the Out-line of the Work, do wonderfully deceive the Eye. This Figure is drawn from the Plan, as uſually; and was put in execution by me, in the Church of S. Ignatius of the Roman College, for the *Thursday* and *Friday* of the Holy Week. Within the Arch, on the Altar, was plac'd a ſepulchral Urn containing the Holy Sacrament. Beneath the Altar was laid a Figure of our Saviour Chriſt taken down from the Croſs. In the miſt of the Tambour, was a Picture of the Bleſſed Virgin in extreme Sorrow; and on the Baluſtrade, Angels mourning, bearing the Inſtruments of the Paſſion.

FIG. LXVI.



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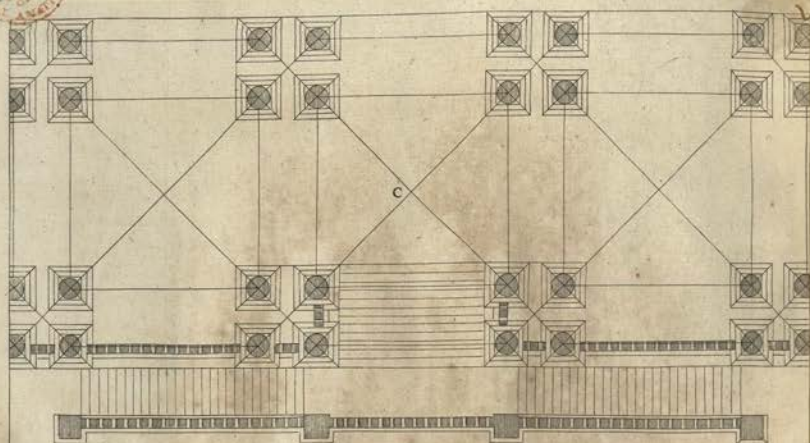


FIG. LXVII.

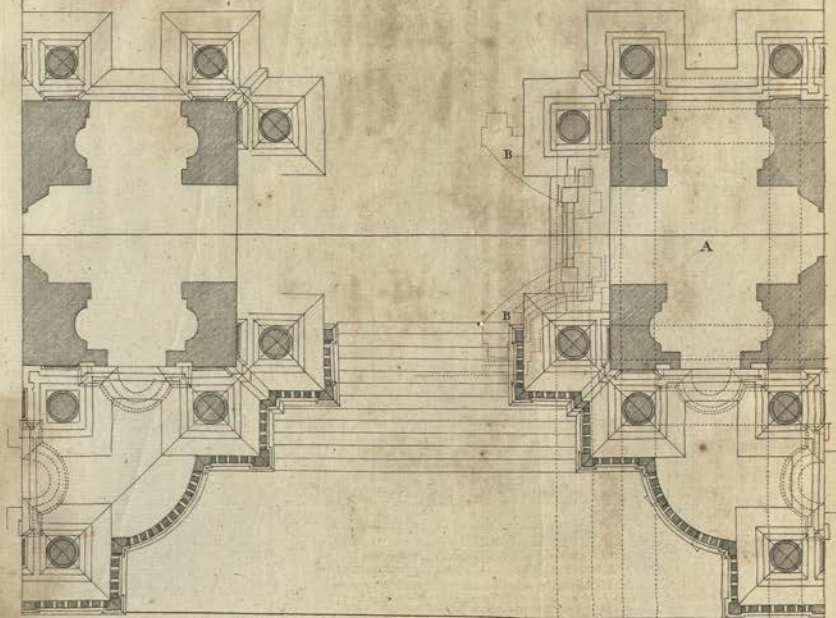


FIGURA Sexagesimaseptima.

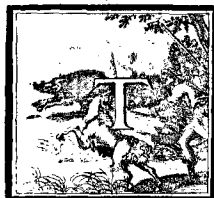
Vestigium geometricum, ac prima præparatio ad figuram septuagesimamprimam.



GREGIAM adeò speciem præstulit, atque oculis adeò imposuit machina quam construxi anno 1685, pro supplicatione quadraginta horarum, in Templo Urbis Farnesiano, ut decreverim satisfacere Studiois, publici juris faciendo non modò imaginem totius ædificii, sed etiam illius vestigia & elevationes: quæ omnia eâ diligentia delineavimus, veluti Opus ipsum non penicillo colorandum, sed lapidibus extruendum fuisset. Spatia nigrantia soliditatem designant parietum & columnarum. Cæteræ lineæ sunt crepidines stylobatarum & coronicum. Initium delineationis fiet ab iis membris, ex quibus oriuntur lineæ occultæ positæ in A, (quæ autem dicuntur de hac medietate, intelligi debent de alia) ne multitudo linearum confusionem pariat. In B lineæ curvæ occultæ sunt vestigium tholi qui complet summitatem ædificii. Vestigium C exhibet ambulacrum interius. Omisimus autem vestigium theatri, quia paginae angustia illud non capit.

The Sixty-seventh FIGURE.

The Geometrical Plan, and first Preparation to the Seventy-first Figure.



THE Machine which I erected in the Year 1685, in the Church of *Farnese*, or *Jesuits Church at Rome*, for the Devotions of the *Forty Hours*; had so admirable an Effect, and so pleasantly deceiv'd the Eye, that I resolv'd to gratify the Studios, not only with a general View, but with the Plan and Elevation thereof; all which was perform'd with such Exactness, that the Work, itself seem'd rather to consist of solid Stones, than to be wrought by the Painter's Hand. The hatch'd Part denotes the Solidity of the Walls and Columns. The other shews the Breaks and Projectures of the Pedestals and Cornices. Left many Lines should cause Confusion, begin with those Members, which produce the occult Lines on the Side A; understanding the same also of the other half. In B the occult curv'd Lines are the Plan of the *Cupola* which crowns the Structure. The Plan C is that of the inner Vestibule, but that of the Theater is here omitted, thro' want of Room in the Page.

FIGURA Sexagesimaoctava.

Elevatio geometrica vestigii præcedentis, & secunda præparatio ad figuram septuagesimamprimam.



N hoc schemate habes elevationem ædificii sectam in longum, quam figurâ septuagesimâ opticè projiciemus: eisdemque membris constare videbis elevationem deformatam, quibus constat elevatio geometrica. Hinc disces ad excogitandas hujusmodi machinas, eandem Architecturæ scientiam in Pictore necessariam esse, quæ ad construenda solida ædificia exigitur in Architecto.

The Sixty-eighth FIGURE.

The Geometrical Elevation of the foregoing Plan, and second Preparation to the Seventy-first Figure.



IN this Figure you have the Elevation of the aforesaid Structure dissected lengthwise; the Perspective thereof is describ'd in the Seventieth Figure; and you may observe that both of them consist of the same Members: whence you may perceive, that for designing things of this kind, the Painter ought to have no less Skill in Architecture, than is requir'd for the Execution of solid Works.

FIG. LXVIII.

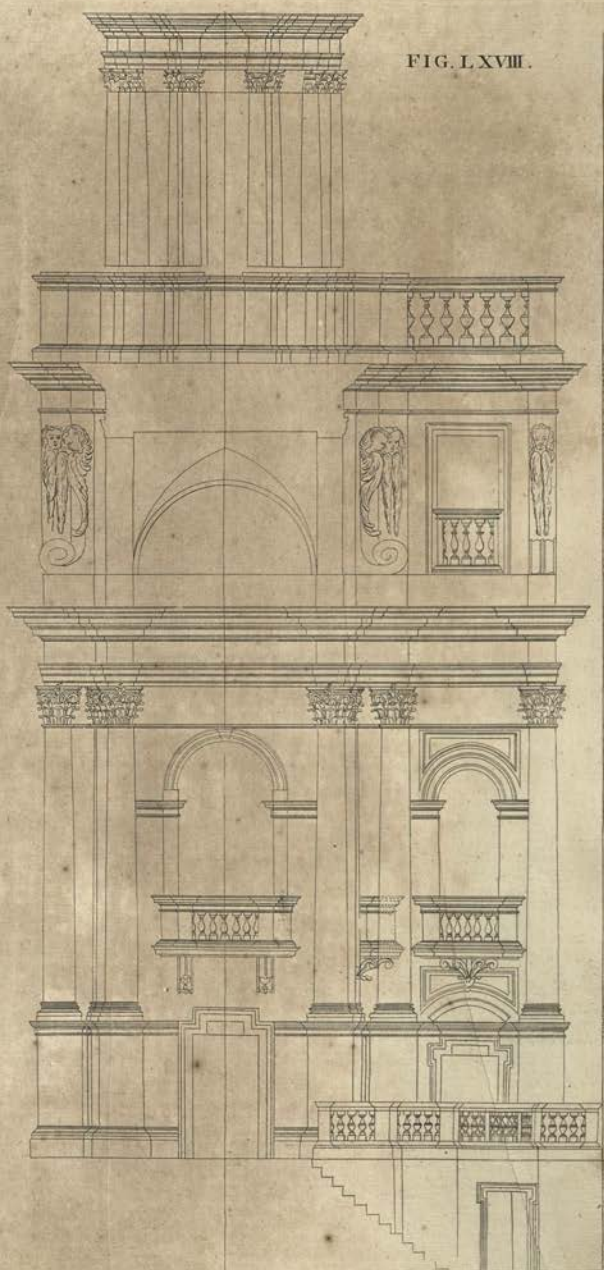


FIG. LXIX.

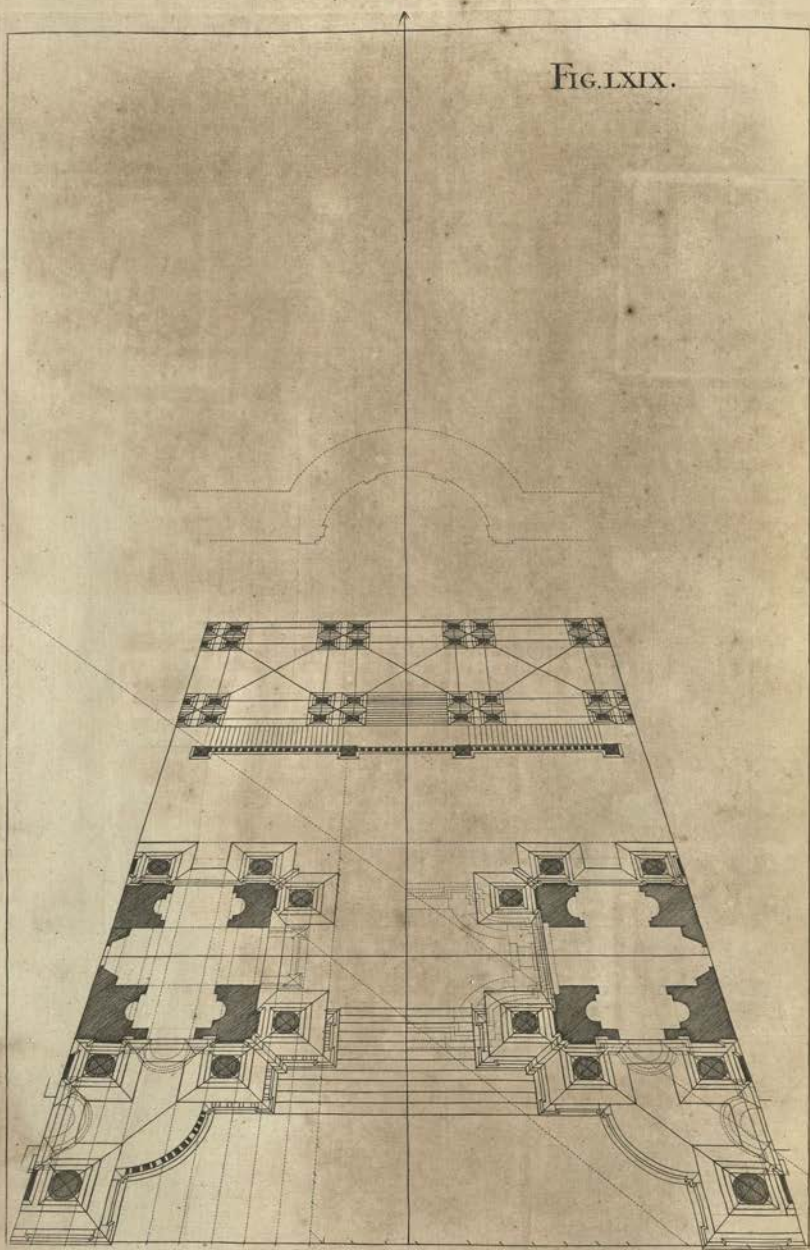


FIGURA Sexagesimanona.

Deformatio vestigii figuræ sexagesimæseptimæ, & præparatio tertia ad figuram septuagesimamprimam.



ARTIFICIUM projectionis vestigii hujus, explicatum à nobis est figurâ quadragesimæsecundâ; nimirum, ut parallelæ sint invicem distantiores, lineam plani deorsum protraximus, ut ex intuitu figuræ statim cognosces.

The Sixty-ninth FIGURE.

The Plan of the Sixty-seventh Figure in Perspective, and third Preparation to the Seventy-first Figure.



THE Artifice us'd in projecting the Perspective of this Plan, has been already shewn in the Forty-second Figure; namely, that for giving the greater Distance between the Parallels, the Ground-line is drawn much lower than its true Place; as is manifest on Inspection of the Figure.

FIGURA SEPTUAGESIMA.

Deformatio elevationis figuræ sexagesimæ octavæ, & præparatio quarta ad figuram septuagesimam primam.



UÆ dicta sunt de projectione vestigii nostri ædificii, habent locum in elevatione; nimirum, ut parallele invicem notabiliter distarent, uti sumus industriâ quam declaravimus figurâ quadragesimâ secundâ.

The Seventieth FIGURE.

The Perspective of the Elevation of the Sixty-eighth Figure, and the fourth Preparation to the Seventy-first Figure.



THAT has been said of the Perspective-Plan of this Structure, is also here practis'd in the Elevation; namely, that the Parallels might be sufficiently distinct, the Perpendiculars are drawn more remote from the Point of Sight, as was shewn in the Forty-second Figure.

FIG. LXX.



FIG. LXXI.

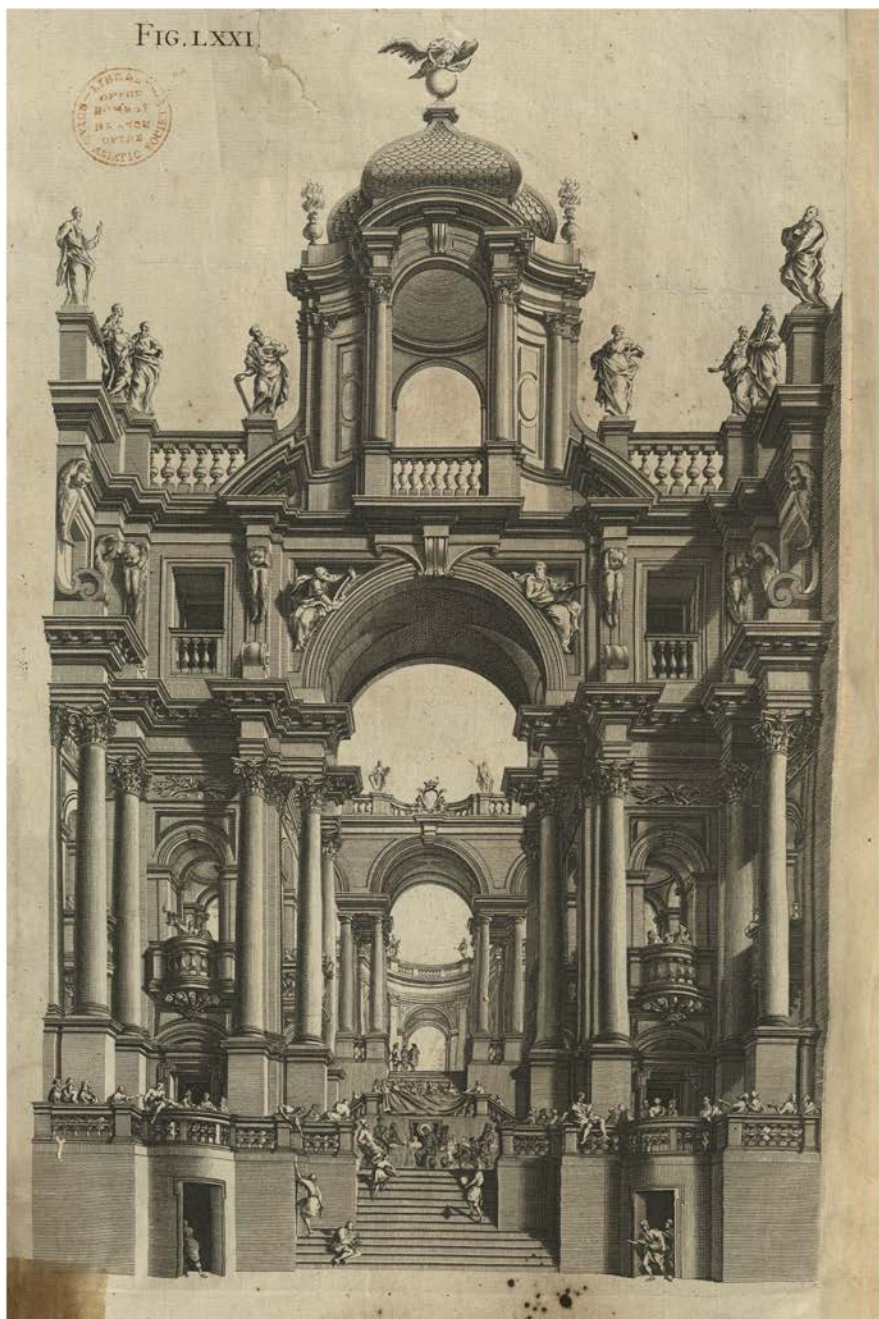


FIGURA Septuagesimaprima.

Theatrum repræsentans Nuptias Canæ Galilææ, constructum Romæ, anno 1685. in expositione Ven. Sacramenti in Templo Farnesiano Societatis JESU.



X antecedentibus præparationibus eruius projectionem nobilis hujus Architecturæ, quæ oculis implebat tum ad lucem solis diurnam, tum præcipue ad lumen candelarum; ex quibus multæ palam erant expositæ, aliæ omnino latebant, ut illuminarent sex diversos ordines telariorum quibus tota machina constabat, non computando in hoc numero telaria, quæ in medio arcus maximi exprimebant nubes refertas Angelis adorantibus Venerabile Sacramentum. Nubes istas omisimus, ne absconderentur partes interiorum ædificiorum. In disponendis autem ordinibus telariorum, servatus est modus quem declaravi figurâ sexagesimaprima & sexagesimâ secunda; ac præterea in eligenda eorum distantia curatum fuit, ut candelæ in parte postica telariorum collocatæ, illuminarent faciem telariorum interiorum: Porro quæ membra præcipua in duabus faciebus majoribus, totidem distincta telaria numerabantur, quorum proinde connexiones discerni vix poterant; eorumque aliquot paria ferreis hamulis copulata erant, ut explicari ac replicari possent, ad faciliorem tractationem diuturnioremque conservationem.

Qui hucusque sequuti me fuerint, nihil dubito quin suum iter felicissime sint prosequuturi; atque Opera bis nostris majora melioraque inventuri.

The Seventy-first FIGURE.

A Theater representing the Marriage of Cana in Galilee, erected in the Jesuits Church at Rome, in the Year 1685; for the Solemnity of exposing the Holy Sacrament.



FROM the foregoing Preparations, is drawn the Perspective of this noble Piece of Architecture; which struck the Eye when seen by Day-light, but was more especially surprizing by Candle-light; many of the Candles being expos'd to Sight, and others altogether hidden, to illuminate these six different Ranges of Scenes, of which the whole Work consisted, without reckoning that in the midst of the great Arch, representing Clouds fill'd with Angels adoring the blessed Sacrament. Those Clouds are here omitted, that the inner Parts of the Work might be the better seen. In disposing the several Ranges of Scenes, the same Method was observ'd, which was deliver'd in the Sixty-first and Sixty-second Figures; and great Care was also taken in their Distances, that the Candles plac'd on the Back of one of them might illuminate the Face of the other behind it. Moreover, each Scene consisted of as many Parts, as there were principal Members in the two greater Façades; so that the Joints were scarcely discernible: and some Pairs of them being coupled with Hinges, folded and unfolded, for the more easy managing and preserving them.

I doubt not but those who have follow'd me thus far, will be encourag'd so to prosecute their Studies, as to be able to design even greater and more noble Works, than these of mine.

FIGURA Septuagesima secunda.

De theatris scenicis.



THEATRIS quæ jam delineavimus affinia sunt theatra scenica; in his tamen non adeò facile reperitur punctum oculi seu perspectiva. Præterea, quia ex obliquitate canalium intra quos moventur scena, oritur ut lineæ rectæ quæ videri debent parallelæ ad lineam plani, non debeant esse parallelæ sed oblique, harum delineatio difficultate non caret. Incommodum istud vitari posset adhibendo canales parallelos ad poscenium, ut alicubi fieri solet, præsertim in Germania. Nihilominus usus Italicus affert hoc adjumentum, ut illi quibus incumbit suggerere actoribus, vel scenas movere, aliisque similibus præesse, facilius lateant & liberius fungantur munere suo.

Ut brevem summam habeas eorum quæ deinde latius declaraturi sumus, hanc figuram contemplantur. 1, 2, 3, 4, est vestigium aule quæ habet in longitudine centum viginti palmos Romanos, in latitudine sexaginta palmos; ut ostendat scala S triginta palmorum. Medietatem loci occupat theatrum, medietatem obtinent podia & loca spectantium. O punctum in quo uniuntur lineæ visuales, D locus pro apparentiis rerum magis ac magis distantium. BC locus poscenii. HH sunt canales obliqui, quorum latitudo est dupla latitudinis scenarum. FG frons & facies theatri. A O ejus profunditas aut longitudo. E locus pro psaltribus, tibicinibus, & fislulalitoribus. K spatium pro spectatoribus. I vestigium podiorum. L scale podiorum. N ipsoeum elevatio. M declivitas tabulati, cum sectione & elevatione theatri. Et scenis ex latere inspectis, quæ cum suis canalibus congruunt, ut demonstrant lineæ occultæ. OO lineæ normalis ad lineam horizontalem. P & Q elevatio scenarum coram inspectarum, quæ introrsum fiuntur; & in latitudine congruunt cum canalibus vestigiis B, in altitudine cum sectionibus elevationis M; ut constet ex lineis occultis. In eadem elevatione M pars altitudinis tribuenda est scenis, pars laquearibus R, per quæ jungitur unumquodque per telariorum. VV lineæ ad explorandum an detur vacuum inter scenas & laquearia, vel inter scenas, vel inter laquearia. In quibusdam autem scenis, loco laquearum pinguntur nubes & aer.

The Seventy-second FIGURE.

Of Scenes for the Stage.



SCENES for the Stage have very much Affinity with those lately describ'd, but the Point of Sight is not so easily found in these; and from the Obliquity of the Grooves in which the Scenes run, it comes to pass, that the right Lines which ought to appear parallel to the Line of the Plan, must not be drawn parallel thereto, but oblique; which is a Work of some Difficulty. This indeed may be avoided by fixing the Grooves parallel to the Poscene; as is usual in some Places, especially in Germany. Nevertheless, the Italian Manner has this Advantage, That those who are employ'd to prompt the Actors, and shift the Scenes, &c. are less expos'd to Sight, in the Performance of their Business.

In this Figure I have given you an Abridgment of those things, which shall hereafter be more enlarg'd on. The Numbers 1, 2, 3, 4, denote the Area of a Hall an hundred and twenty Roman Palms in Length, and sixty in Breadth; as is manifest from the Scale of thirty Palms mark'd S. Half this Space is taken up by the Stage, the other half by the Spectators. O is the Point in which the visual Lines concenter. D is the Place of those things that are to appear most remote. BC is the Place of the Poscene. HH are the oblique Grooves, whose Lengths are double the Breadth of the Scenes. FG is the Front of the Stage. A O is its Depth or Length. E is the Place for the Musick. K is the Room for Spectators. I is the Plan of the Galleries. L the Stairs to the same. N is the Elevation of the Galleries. M shews the Declivity of the Floor, with the Section and Elevation of the Stage and Scenes view'd on the Side; answering their respective Grooves, as the occult Lines demonstrate. OO is a Line perpendicular to that of the Horizon. P and Q are the Elevation of the Scenes view'd in Front, turning inwards, in Breadth agreeing with the Length of the Grooves of the Plan B; and in Height answering that of the Sections of the Elevation M; as is evident from the occult Lines. In this Profile M, part of the Height belongs to the Scenes, and part to their Soft-fires, or Cielings, R; where each Pair of these Frames are join'd. VV are the Lines by which is espy'd what Vacancy there is either between the Scenes and their Cielings, between the Scenes themselves, or between their respective Cielings; tho in some Scenes the Place of these last is supply'd by painting therein the Air with Clouds, &c.

FIG. LXXII.

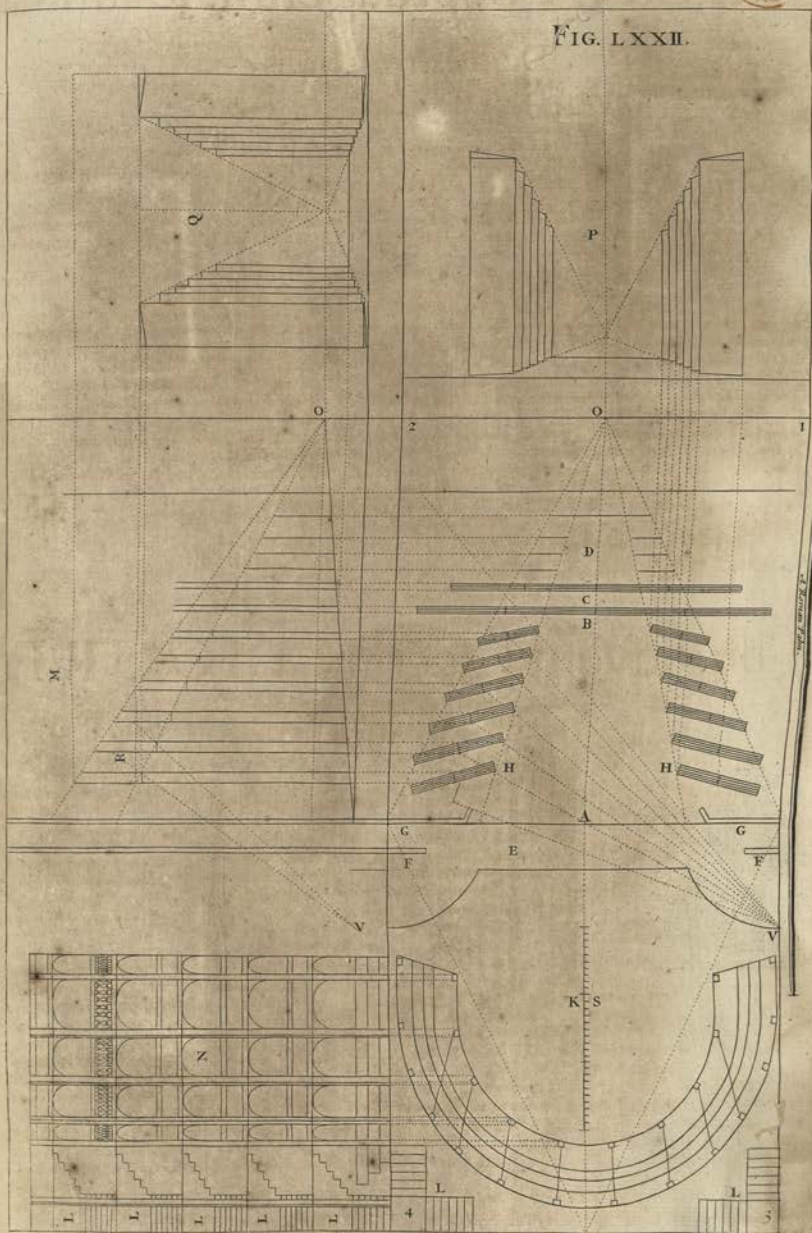
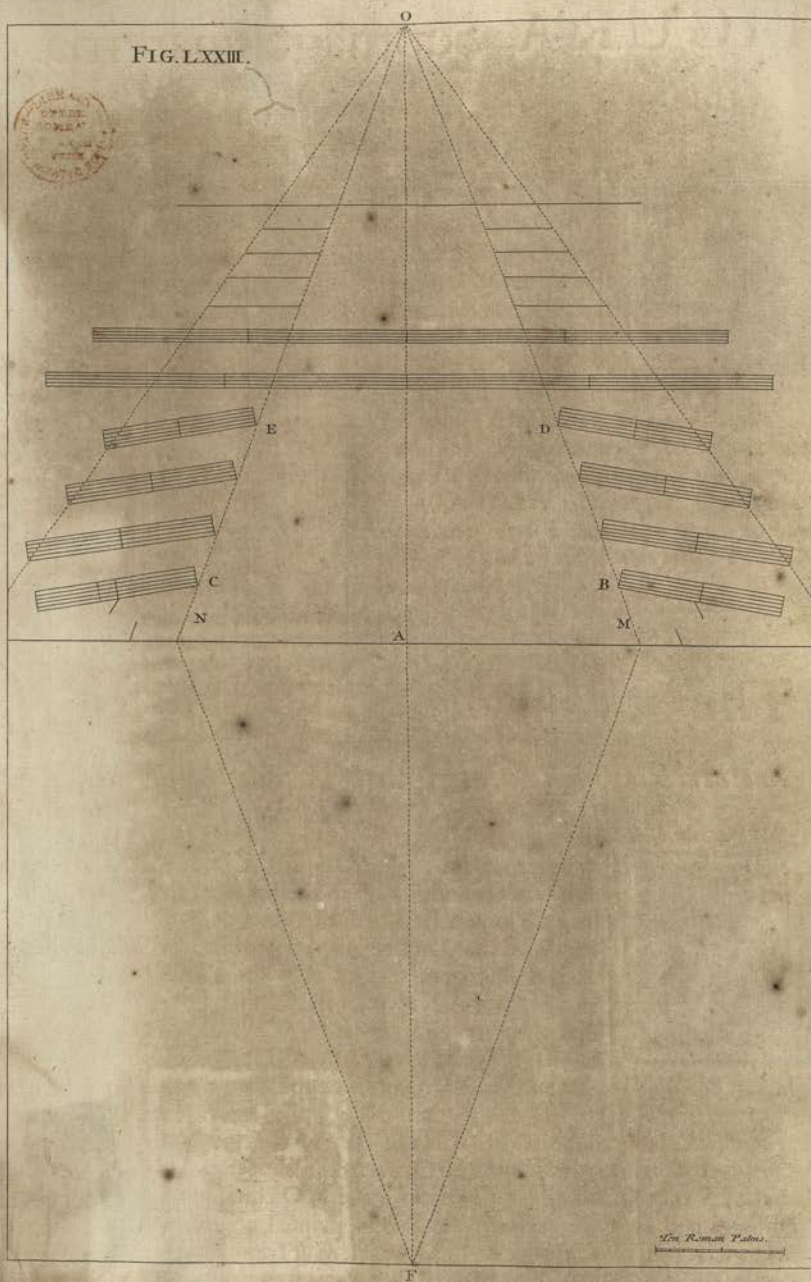


FIG. LXXIII.



The Roman Palm.

FIGURA Septuagesimatertia.

Aliud vestigium theatri, ubi de modo inveniendi
ejus punctum.



I pingendæ sint scenæ theatri alicujus antea constructi, delineare oportebit vestigium geometricum ex ipso erutum, (ad formam vestigii quod cernis in hac pagina) ut inveniatur longitudo theatri, seu distantia quam ejus punctum habet à puncto A: id autem nullo negotio fiet, accipiendo distantias BC inter primos canales, & DE inter ultimos, ac ducendo visuales MO, NO: nam theatrum habebit longitudinem AO, ac punctum perspectivæ in vestigio theatri erit O. Præterea scire oportebit longitudinem & latitudinem canalium, eorumque numerum, distantias, & flexus; ac præcipuè curandum est, ut, licet sint obliqui ad lineam MN, sint invicem paralleli in unoquoque latere, ac singuli tangant lineas MO, NO. Jam si rectæ AO fiat æqualis recta FA, in F erit punctum distantiae: adeoque si theatrum juxta methodum à nobis tradendam depictum fuerit, spectatori qui consistat in F apparebit veluti tabula picta juxta leges perspectivæ, posita in A.

The Seventy-third FIGURE.

*Another Plan of a Theater, with the Method of finding
the Point of Sight therein.*



If it be requir'd to paint the Scenes of some Theater already built, the Geometrical Plan thereof must first be carefully drawn, (as you see, for Example, in this Plate) that the length of the Theater may be found; or the Distance of its Point from that of A; which is easily done, by taking the Interval BC of the first Grooves, and DE of the latter; and drawing the Visuals MO, NO: for AO is the Length of the Theater, and the Point of Sight, or Perspective, therein, is O. Moreover the Length and Breadth of the Grooves must be known, as also their Numbers, Distance, and Obliquity; and especial Care must be taken, that tho they be oblique to the Line MN, that on each Side they be Parallels between themselves, and that they all touch the Lines MO, NO. If you then make AO equal to FA, the Point of Distance will be F; and if the Theater be painted according to the Rules hereafter given, it will appear to him that views it from F, as a regular Piece of Perspective plac'd in A.

Figura Septuagesima quarta.

Sectio Scenarum Theatri.

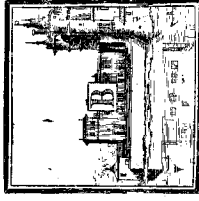


R. E. T. E. R. vestigium Theatri delineanda est sectio scenarum. Itaque si acceptis mensuris altitudinis, quam punctum A unde incipit tabulatum, ac punctum D poscentii, habent supra planum horizontale FV, fiant ex perpendiculari NV tum recta ADO ex qua innotescit declivitas tabulati, tum recta NO, quæ sit parallela ad FV & æqualis rectæ AO figura septuagesimæ quintæ; punctum theatri in elevatione est O; in poscentio vero punctum theatri est Q. Si maxima scenarum altitudo sit EB, recta OE dat altitudinem omnium reliquarum. Vera tamen altitudo cuiuslibet scenæ est illa quam habet linea major, ex minori autem dignoscitur quantum obliquitas cuiusque scenæ apparenter minuat altitudinem extremæ illius lineæ. Porro excessus quo linea major superat minorem tum in summo tum in imo, diligenter notandus est, hinc enim pendit intelligentia figuræ septuagesimæ quintæ. Punctum M quod est remotum ad N quantum in figura septuagesimæ tertie punctum F est remotum ab A, designat locum unde Theatrum spectari oporteat, ut ibidem notavimus.

In construendo tabulato solet servari hæc regula, ut altitudo puncti O sit æqualis altitudini oculi. Et elevatio ex A usque ad D sit nona circiter vel decima pars ipsius longitudinis AD. Expediret autem ad scenas facilius movendas, pavimentum F esse profundius pavimento G, ut erecto corpore sub tabulato ambulari possit.

The Seventy-fourth Fig.

The Section or Profile of Scenes for Theaters.



ESIDES the Plan of the Theater, the Section of the Scenes is also to be delineated, for finding the Point of the Theater in the Elevation. Wherefore, setting the Measures of the Heights which the Point A, where the Floor of the Stage begins, and the Point D of the Poscene, have above the Level of the Horizontal FV; from the Perpendicular NV draw the right Line ADO, which gives the Declivity of the Stage; then make NO parallel to FV, and equal to AO of the Seventy-third Figure: The Point of the Theater in Elevation is O; the Point of the same on the Poscene is Q. If EB be the greatest Height of the first Scene, the Line OE determines the Height of all the others. The longest of the two Lines gives the true Height of each Scene; and the shorter discovers how much of that Height the Sight loses on the One-line, by the oblique Position of the Scenes. Moreover, the Excess of the longer Line above the shorter, as well at top as at bottom, is to be well observ'd; for on this depends the right understanding of the Seventy-fifth Figure. The Point M, which is as far distant from N, as that of F is from A in the Seventy-third Figure, denotes the Place from whence the Stage ought to be view'd; as is there mention'd.

In laying the Floor of the Stage, this Rule is commonly observ'd, That the Height of the Point O be made equal to the Height of the Eye, and that the Rise of the Floor from A to D, be about a Ninth or Tenth Part of the Length AD. 'Tis also requisite, for the better shifting the Scenes, that the Pavement F be sunk lower than that of G, that a Man may walk upright under the Floor thereof.



FIG. LXXV.

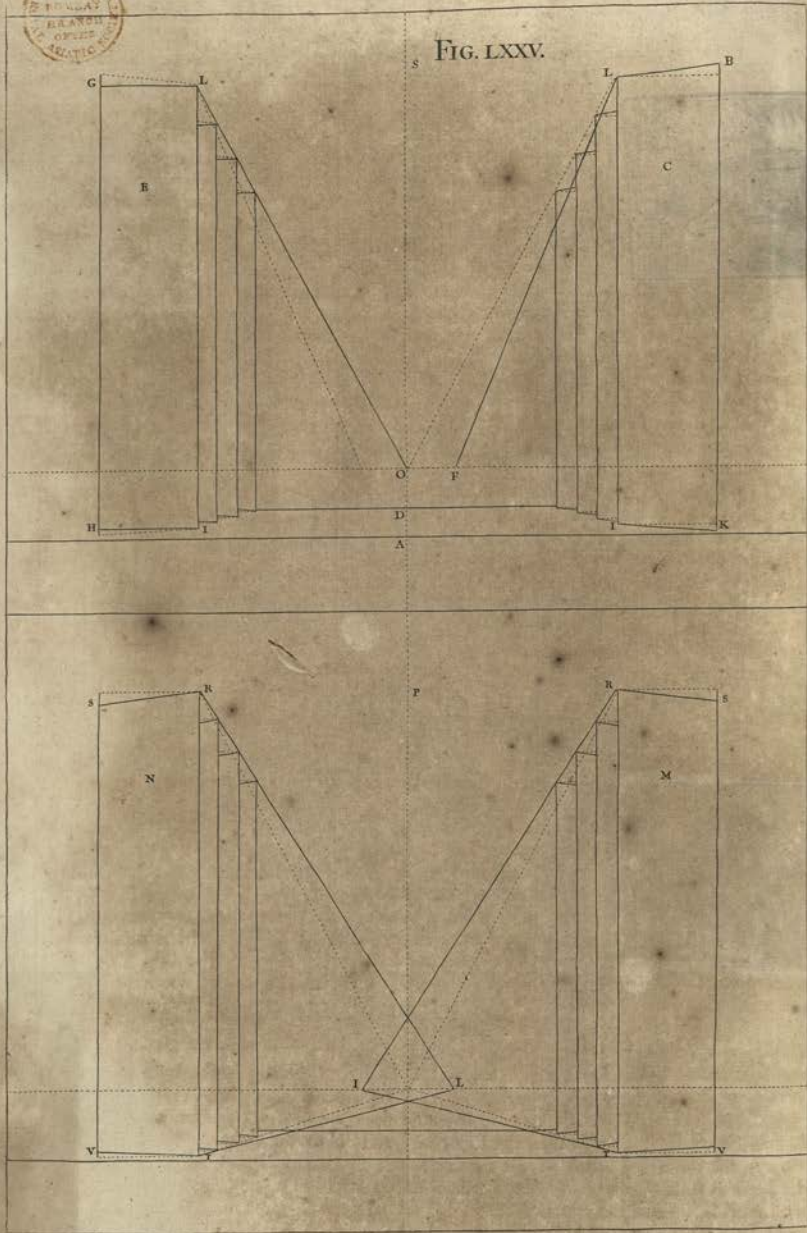


FIGURA Septuagesimaquinta.

Elevatio scenarum coram inspectarum: ubi docetur artificium ut scenæ oblique appareant rectæ.



CENÆ quas vides in S, habent suam latitudinem à vestigio figuræ septuagesimætertie, altitudinem ab elevatione figuræ septuagesimæquartæ, ac consentur erectæ & canalibus insertæ, quæ omnia repræsentantur etiam figurâ septuagesimæsecundâ in P & Q. Velim observes quantum elevetur tabularum in principio A, in postcenio D, & in puncto theatri O. Similiter notare oportet elevationem singularum scenarum, quæ propter obliquitatem canalium flectuntur introrsum: iccirco lineæ BL, KI, partis C, non videntur parallelæ ad lineam plani, ut reipsa sunt; ac visualis LF non tendit ad punctum oculi O, sed ad punctum F. Si autem excessus ap-

parens, quem recta BK habet in summo & imo supra rectam LI, transferatur in partem E scenarum, (iidem excessus desumi etiam possunt ex figura septuagesimæquartâ) ac ducantur rectæ LG, IH, habebuntur lineæ apparenter parallelæ ad lineam plani. Si fiat recta LO, quæ cum LG faciat angulum GLO æqualem angulo BLF, eadem LO tendet exactissimè ad punctum O oculi, eaque utendum erit ut visuali.

In P supponimus scenas M & N jacere super pavimento unas super aliis, ac duas lineas RT, habere distantiam eandem cum duabus LI, & ita in reliquis scenis. Ubi notandum est, lineas RS, TV, easdem esse cum lineis LG, IH, scenarum E: nihilominus lineas RS, TV, non esse parallelas, quum tamen LG, IH, videantur parallelæ. Proinde si fiat recta RL, & anguli SRL, GLO, sint æquales rectâ RL utendum erit tanquam visuali, in L erit punctum accidentale oculi pro pingendis scenis N, ac lineæ RS, TV, habebuntur ut parallelæ: id autem quod superest in telario ultra tales lineas, pro nibilo computabitur, ibique pingetur aer aut aliquid aliud. Punctum accidentale oculi pro pingendis scenis M, erit in I.

The Seventy-fifth FIGURE.

The Elevation of Scenes in Front, and how the oblique Scenes are made to appear direct.

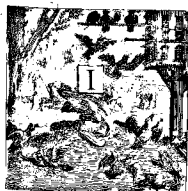


THE Scenes in S have their Breadth from the Plan of the Seventy-third Figure, and their Height from the Elevation of the Seventy-fourth Figure; and are suppos'd to stand perpendicularly in their Grooves; all which is also represented in P and Q of the Seventy-second Figure. I would have you observe, how much the Floor rises, from its Edge A, to the Postscene D, and to the Point of the Theater O. You should also note the Elevation of each Scene, which, by reason of the Obliquity of the Grooves, turn inward: Wherefore the Lines BL, KI, of the Part C, do not seem Parallels to the Ground-line, as they really are; and the Visual LF tends not to the Point of Sight⁷ O, but to the Point F. But if the seeming Excess, which the Line BK has at top and at bottom, above the Line LI, be transferr'd on the Side of the Scenes E, (which Excess may also be taken from the Seventy-fourth Figure) and you draw the Lines LG, IH; these Lines will appear Parallels to the Line of the Plan. Then drawing the Line LO, so as to make the Angle GLO equal to the Angle BLF, the said LO shall tend directly to the Point of Sight O; and serve for a visual Line.

In P, I suppose the Scenes M and N to lie one upon another on the Floor, and the two Lines RT to have the same Distance as the Lines LI; and so of the others. Where you are to take Notice, that the Lines RS, TV, are the same with the Lines LG, IH, of the Scenes E: and that the Lines RS, TV, are not Parallels; altho LG, IH, seem to be so. Therefore, if you draw the Line RL, so that the Angles SRL, and GLO, be equal; the Line RL shall serve as a Visual, and L shall be the accidental Point of Sight, for painting the Scenes of the Side N; and the Lines RS, TV, shall be us'd as Parallels. What remains on the Frame beyond those Lines, is to be reckon'd as nothing; but you may paint there Air, or what you please. The accidental Point of Sight for painting the Scenes of the Side M, is I.

FIGURA Septuagesimasexta.

Modus delineandi exemplar scenarum.



TERUM delineavimus scenas erectas super tabulato; in B nudas, in A depictas, additis projecturis coronicum & aliorum ornamentorum. Deformatio scenarum A eruitur methodo consuetâ ex vestigio C, in quo videbis lineam plani deorsum protractam. Vestigium autem geometricum est in D.

The Seventy-sixth FIGURE.

The Manner of delineating the Designs of Scenes.



IN this Plate you have another Design of Scenes erected on the Floor; the naked Scenes are B; the painted ones A; with the additional Projectures of Cornices and other Ornaments. The Draught of the Scenes A is produc'd from the Plan C, after the usual Manner; in which you may observe the Ground-line to be lower than its true place, for the greater Distinction of the Parallels. The Geometrical Plan is D.

FIG LXXVI

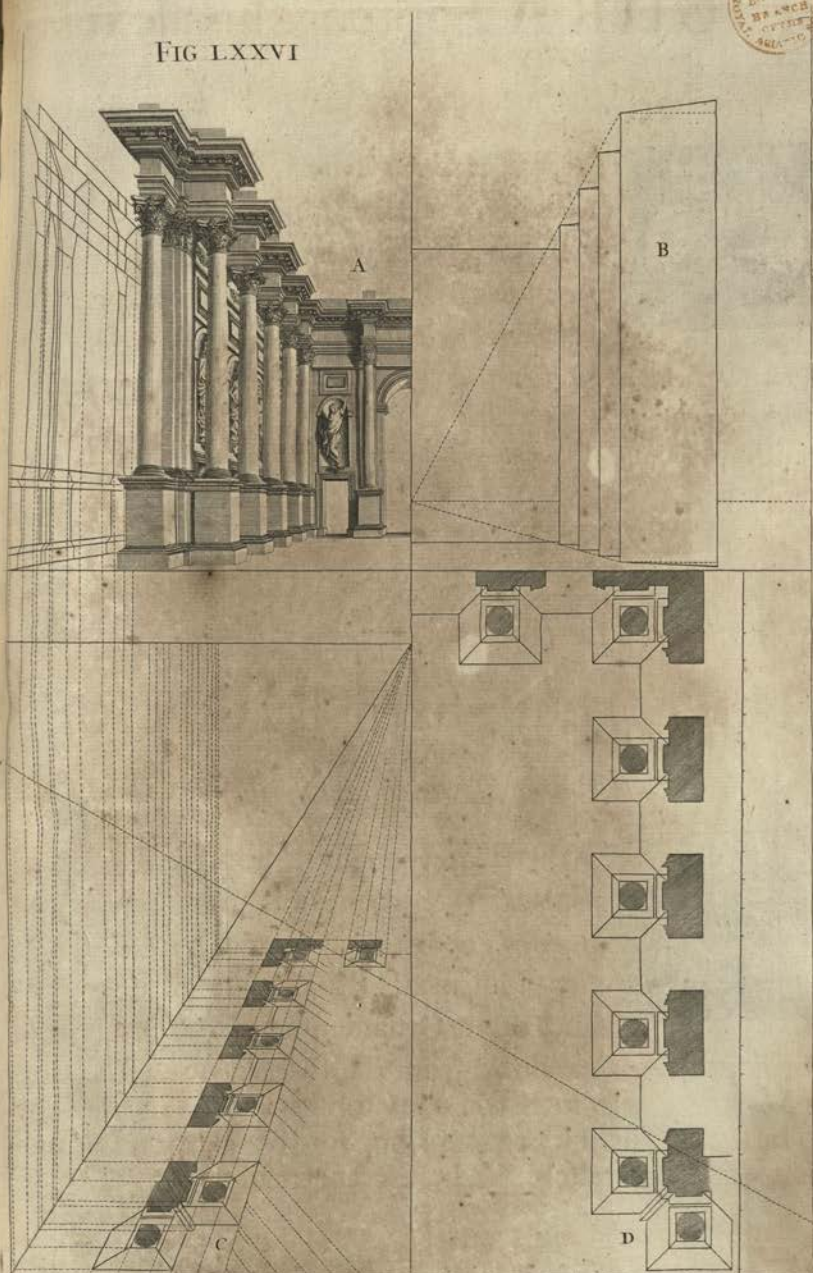
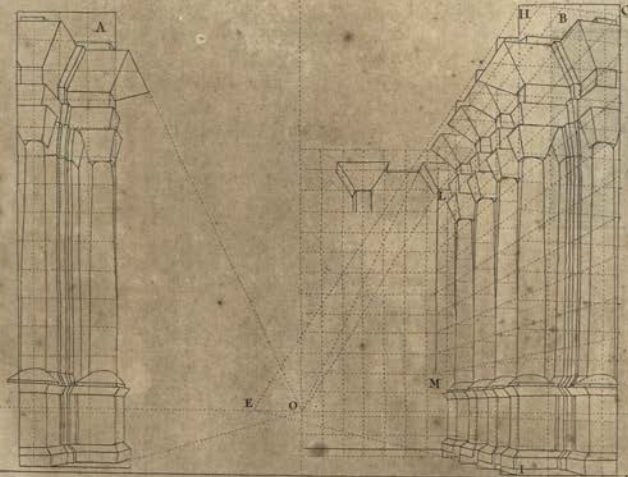




FIG. LXXVII.



FIGUR A Septuagesimaseptima.

Modus reticulandi & pingendi scenas theatri.



OST QUAM in pavimento exactissime disposueris tum poscenium, tum ex ordine scenas reliquas, unam alteri incumbentem, ut figura septuagesima quinta declaravimus, fiet linea horizontalis, in qua notanda sunt tria puncta perspectivæ, unum in *O* usui futurum in pingendo poscenio, ac duo reliqua hinc inde, singula videlicet pro scenis partis oppositæ. Jam supponendo quod in parvo exemplari *A* primæ scenæ facta fuerit reticulatio per quadrata perfectâ; proportionalis divisio fiet tum in recta *HI* primæ scenæ *B*, tum in recta *CD*. Postea ex puncto *E*, per singula puncta divisionum rectæ *HI*, sicut visuales adhibendo funiculum colore nigro imbutum; eamque ope, ut figura ostendit, reticulare oportebit scenam *B*, tum remota ea scenam illi subiectam, & eodem modo aliam *G* aliam; ac demum per divisiones quas in recta *LM* faciunt visuales ex uncto *E*, absolvetur reticulatio poscenii, cuius quadrata esse debent perfectâ, secus quadrata scenarum. In parte inferiori paginae, duæ scenæ *G* & *F* ostendunt ornamenta quæ in scenis depingi possunt. Velim autem observes, tum lineas transversas cornicum, quæ non sunt invicem parallelæ, tum visuales quæ tendunt ad puncta opposita. Nam ejusmodi lineæ continent duas peculiares difficultates projectionum theatralium; easque ut superes, exacte servandæ sunt regulæ quas declaravimus:

The Seventy-seventh FIGURE.

The Manner of making the Net-work or Squares, and painting the Scenes of Theatres.



AFTER you have with great Exactness dispos'd the Poscene on the Pavement, and the others in order one upon another, as was mention'd in the Seventy-fifth Figure; draw the Horizontal-line, and mark therein three Points of Sight: That in *O*, for the Use of the Poscene; and the Points on the Sides, for the Service of the opposite Scenes respectively. Then, supposing that the Net-work of the small Draught of the first Scene *A*, consists of perfect Squares; transport the same Divisions both on the Lines *HI* and *CD* of the first Scene *B*; and with a black Line strike the Visuals from the Point *E*, by the Points of the Divisions of *HI*; and by the Help of those Visuals make the Net-work of the Scene *B*, as is done in the Figure. When that's done, lay it aside; and do the next in the same manner; and so of the others. Lastly, by the Divisions, which the Visuals from the Point *E* make on the Perpendicular *LM*, finish the Net-work on the Poscene, which consists of perfect Squares, tho' that of the Scenes does not. The two Scenes of the lower part of the Plate, *G* and *F*, shew what Diversity of Ornament the Painter may introduce. I would have you also take particular Notice, both of the transverse Lines of the Cornice, which are not Parallels to each other; and of the Visuals which are directed to their opposite Points: because in these two Particulars lies the greatest Difficulty of describing Theatrical Designs; for the surmounting which, it's absolutely necessary, that you carefully regard the Rules hitherto deliver'd.

FIGURA Septuagesimaoctava,

De projectionibus horizontalibus.



UEMAD MODUM facilius est deformatio columnarum jacentium, quam columnarum erectarum; (nam lineæ quæ in istis sunt perpendiculares, in illis sunt visuales, ac nullus circulus amittit suam formam) ita projectiones horizontales, quas in laquearibus delineare necesse est, contra quam Pictores imaginantur, expeditiores & faciliores sunt verticalibus,

quas hucusque tractavimus. Nam ut stylobatæ & columnæ appareant erectæ, pingendæ sunt veluti jacentes.

Deformationes horizontales auspicamur à mutulis, quia columnæ ac stylobatæ identidem iis imponuntur, ut magis in prospectu sint. Ob diversitatem verò quam habet latus mutuli à sua facie, utriusque delineationem geometricam seorsim in hac figura exhibemus.

The Seventy-eighth FIGURE,

Of Horizontal Perspective.



It is easier to describe in Perspective Columns lying on the Ground, than those that are Erect, (the Lines in these last being Perpendiculars, which in the former are Visuals, wherein no Circle loses its Form) so the Horizontal Projections of Perspective, proper for Cielings, contrary to the Judgment Painters usually make, are perform'd with more Ease and Expedition, than the Verticall,

which we have hitherto treated of; forasmuch as the Pedestals and Columns that must appear erect, are painted as if lying on the Ground.

I have usher'd in these Horizontal Designs with those of Corbels, because, for setting the Pedestals and Columns more in View, they generally seem to be supported by them. And the Side of this Corbel being different from its Face, I have here inserted a Geometrical Description of each distinct.



FIG: LXXVIII.

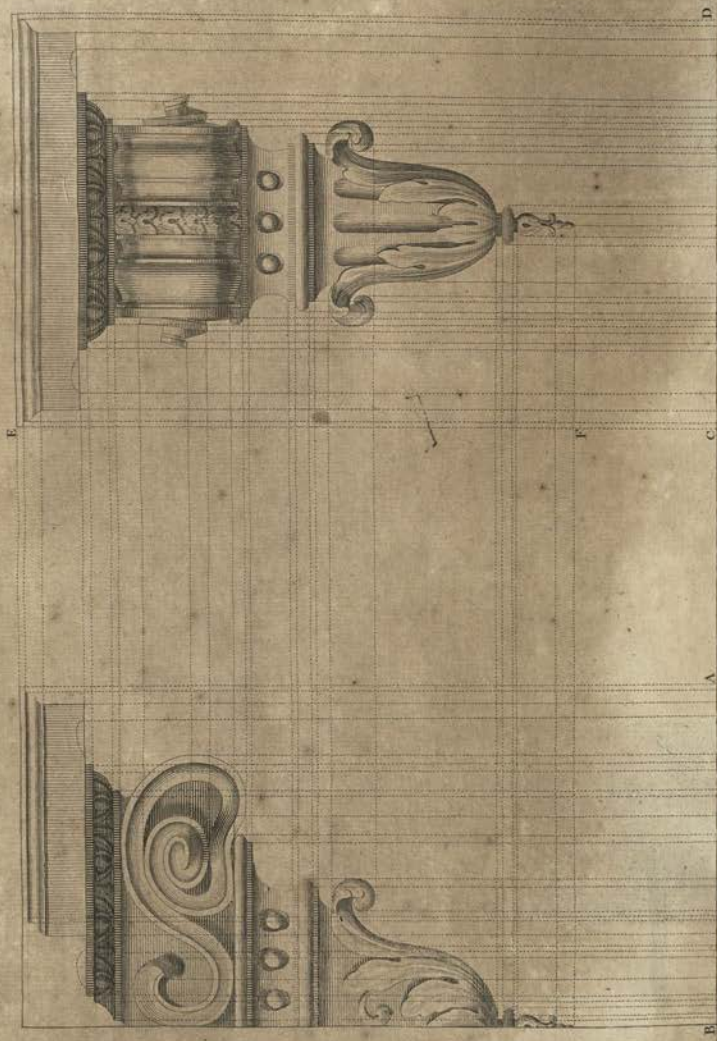


FIG. LXXIX.

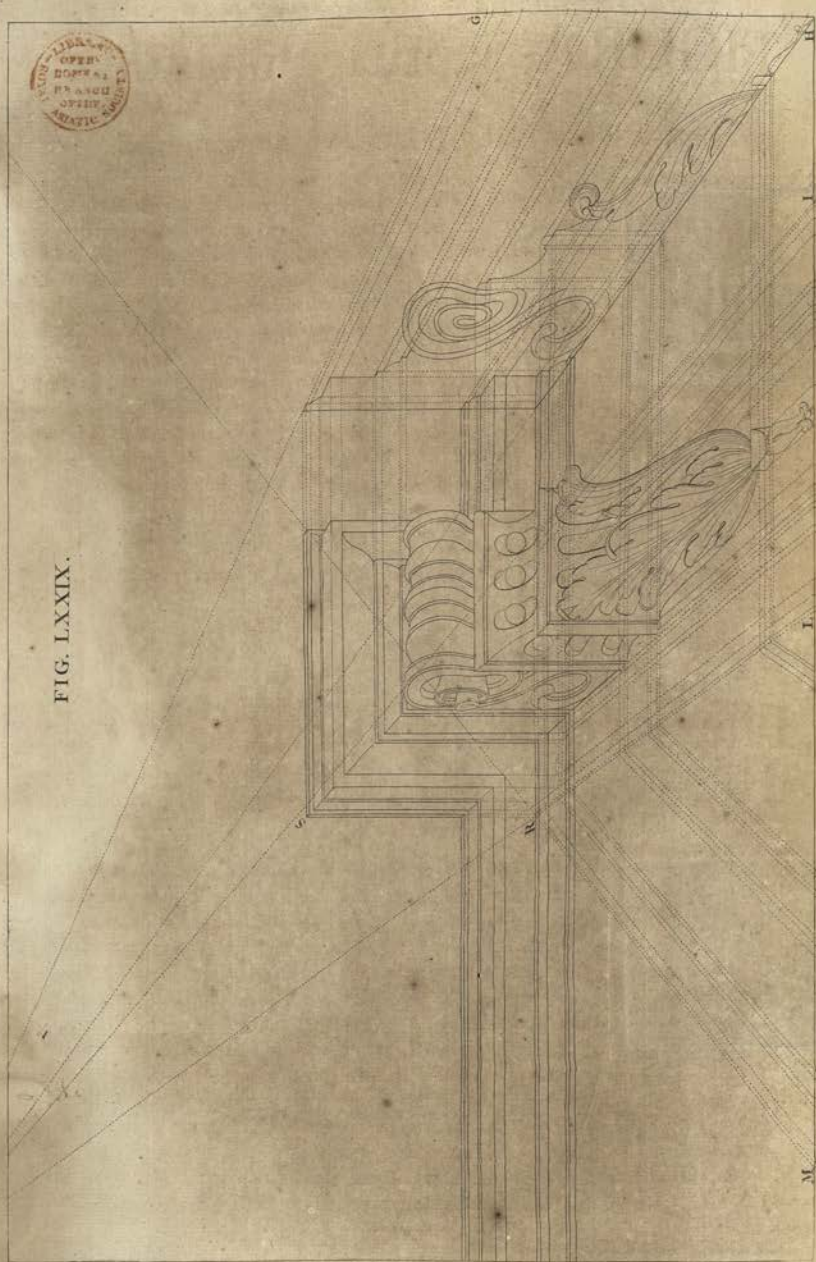


FIGURA Septuagesimanona.

Projectiones vestigii & elevationis mutuli.



ACIES mutuli quam delineavimus Figurâ septuagesima-octavâ, gerit hic munus vestigii; latus verò gerit manus elevationis; ut ostendunt lineæ occultæ quæ ex divisionibus faciei tendunt ad punctum oculi, ex divisionibus lateris tendunt ad punctum distantiae (puncta oculi ac distantiae in hac & sequentibus figuris cadunt extra paginam.) Per sectiones harum linearum ducuntur lineæ quæ terminant singulas partes vestigii deformati; bujusque adjumento ducitur elevatio lateris, ac methodo consueta latitudines & longitudines mutuli solidi eruuntur ex vestigio, altitudi-

nes ex elevatione. Hic & deinceps nomina longitudinis & altitudinis usurpamus, veluti planum cujuslibet perspective esset verticale; in qua suppositione, *IL* esset latitudo mutuli, *SR* altitudo, *RL* longitudo: quum *SR* reverâ sit longitudo, *RL* altitudo. Ad faciliorem descriptionem bujus figuræ observandum est, rectis *IL*, *LM*, *GH*, bujus paginæ inesse divisiones rectarum *DC*, *FE*, *AB*, figuræ septuagesima-octavæ.

The Seventy-ninth FIGURE.

The Plan and Elevation of a Corbel in Perspective.

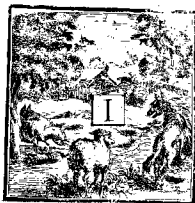


THE Face of the Corbel describ'd in the Seventy-eighth Figure, in this does the Office of a Plan; and the Side serves here for the Elevation; as is plain from the occult Lines, which from the Divisions of the Face tend to the Point of Sight, and from those of the Side tend to the Point of Distance; both which Points, in this and the succeeding Figure, fall without the Plate. From the Intersections of these Lines are drawn others, that determine each Part of the Perspective-Plan; by means of which, the Elevation of the Side being also form'd, the Breadths and

Lengths of the solid Corbel are taken, as usual, from the Plan, and the Heights from the Elevation. Here and henceforward, the Terms of Length and Height are made use of, as tho' the Plan of each Perspective were vertical; according to which Supposition, *IL* is the Breadth of the Corbel, *SR* the Height, and *RL* the Length; whereas in reality *SR* is the Length, and *RL* the Height. For the more ready Description of this Figure you will do well to observe, that the Lines *IL*, *LM*, *GH*, of this Plate, bear the same Divisions as *DC*, *FE*, *AB*, of the Seventy-eighth Figure.

FIGURA Octogesima.

Horizontalis projectio mutuli
inumbrați.



*N hac Figura suas umbras mutulo addidimus: eumque si in altum supra oculum ele-
vaveris, & ex distantia quam ipsi dedi-
mus suspexeris; miraberis profectò, in alium
longè concinniore[m] subito mutatum fuisse.*

The Eightieth FIGURE.

*The Horizontal Projection of a
Shaded Corbel.*



N this Figure you have the Corbel fi-
nish'd with its proper Shades; which, if
plac'd above the Eye, and beheld from
the Distance here assign'd it; you'll be
strangely surpriz'd at the sudden and most agreeable Al-
teration you'll find therein.

FIG. LXXX.



THE
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LONDON
FIG. 5

FIG. LXXXI.

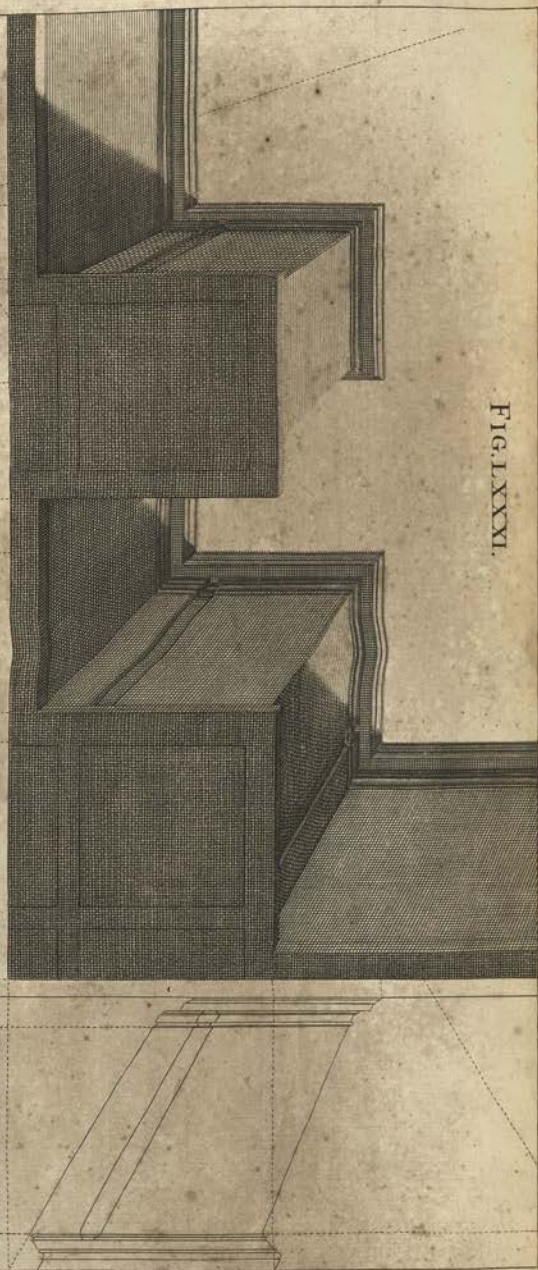


Figura Octogesima prima.

Sculptate CORINTHII horizon-
taliter contracti.



N deformandis hujce sculobatis, usi sumus projectione vestigi et elevationis, quam exhibet Figura Duodecima; ut figuram illam cum ista conferenti manifestissime constabit. Porro sculobatas pingi solere incumbentes mutulis, diximus figurâ septuagesimaoctavâ.

The Eighty-first Figure.

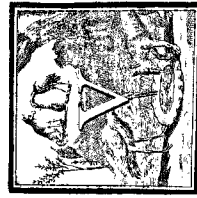
CORINTHIAN Pedestals in an
Horizontal Perspective.



IN delineating these Pedestals, I have made use of the Plan and Upright put into Perspective in the Twelfth Figure; as will evidently appear, by comparing that Figure with this. I have already mentioned, in the Seventy-eighth Figure, that in painting these Pedestals, they are generally supposed to be upheld by Corbels.

Fig Oögesimafecunda.

Columna CORINTHIA horizontaliter deformata.



ESTIGIUM & elevatio stylobatæ, quem delineavimus figurâ duodecimâ, supeditat mensuras pilarum hoc loco deformandarum, ut ex iis eruatur contractio columnæ. Huic autem soli suas umbras addimus, ut clarius appareat modus & artificum totius operationis. Ex his vides, quadrata & circulos in perspectiva horizontali omnino retinere suam figuram, eamque dumtaxat restringi paulatim & coarctari: quicquid in contrarium & verbis & penicillo docuerint Pictores nonnulli.

The Eighty-second Fig.

A CORINTHIAN Column in Horizontal Perspective.



THE Plan and Elevation of the Pedestal delineated in the Twelfth Figure, gives also the Measures for reducing these Pilasters into Perspective; from which the Contraction of the Column is taken. I have shadow'd only this last, that the Manner of the whole Work might be the more conspicuous. By this you see the Squares and Circles in Horizontal Perspective always retain their Figures, without any Alteration, save that of being gradually diminish'd and made less; notwithstanding what some Painters have taught and practis'd to the contrary.

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ASTORIA, ORE.

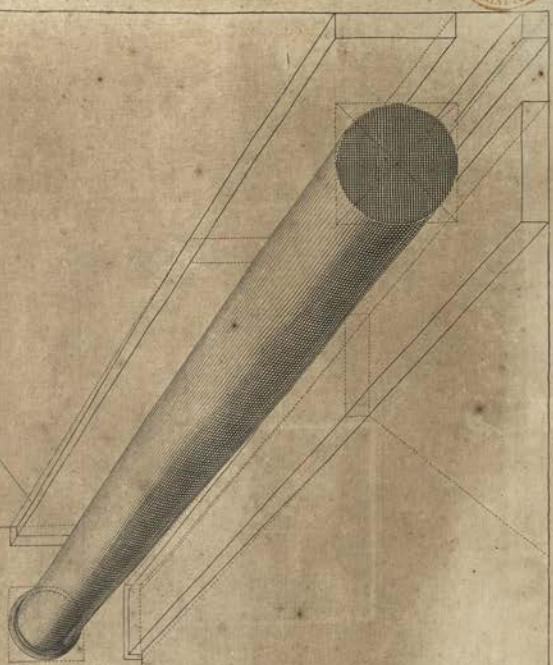


FIG. LXXXII.

Fig. LXXXIII.

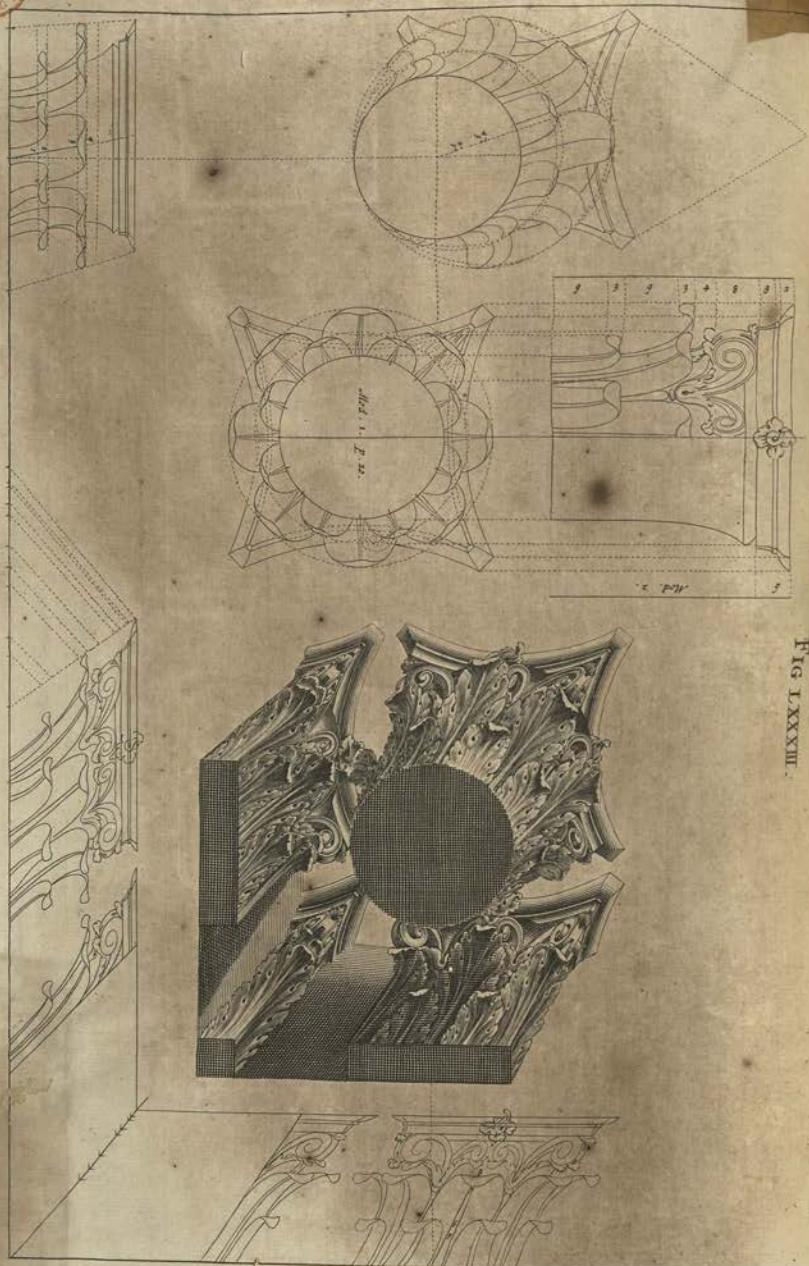


Figura Octogefimatertia.

Capitella CORINTHIA horizon-
taliter contracta.



ABES in hac pagina deformationes
ceffigii & elevationis capitelli Co-
rinthii, quas defumpimus ex deline-
ationibus geometricis, transferendo
mensuras earum in lineas plani *AB*,
& elevationis *AC*, ita ut facillime
diagnosci possit unde nascentur singule
partes capitellorum nitidorum. Nihil dubito quin deforma-
tiones horizontales suo experturus faciliores verticalibus
quas dedimus figurâ vigesimaquartâ. Nam in horizontali-
bus *CV*us foliorum circulis clauduntur, quorum centra mun-
antur latitudines à suis ceffigiis in punctis 1, 2, 3, 4;
altitudines verò à capitellis elevationis in punctis 5, 6, 7, 8.

The Eighty-third Figure.

A CORINTHIAN Capital horizon-
tally contracted in Perspective.



OU have in this Plate the Perspec-
tive both of the Plan and Elevation
of the *Corinthian* Capital, drawn
from the Geometrical Descriptions,
by transferring their Measures into
the Ground-line *AB*, and into that
of the Elevation *AC*; so that you
may readily discover from whence every part of the
finisht Capital is produc'd. I don't doubt but you'll
experience these horizontal Perspectives to be much less
difficult than the vertical propos'd in the Twenty-fourth
Figure. For in these the Circuit of the Leaves is deter-
mind by perfect Circles, whose Centers take their
Breaddths from the Plan at the Points 1, 2, 3, 4; and
their Heights from the Capitals of the Elevation, at the
Points 5, 6, 7, 8.

Figura Octogesimquarta.

Coronix CORINTHIA.



I faciendæ sint coronices que habeant angulos, elevatio geometrica A representabit unum latus, alterum sectio B. Curandum est autem, ut crepidines parium, quas fingere volumus includere columnis, non obfint continne distributioni mutulorum. Ad contrati-

nem elevationis A & sectionis B, in lineam plani EF & elevationis EG transferre oportet puncta diversarum latitudinum, quas habent in elevatione A unguis epistylis, zophori, & coronæ, ducendo ex his lineas ad punctum oculi; in partem verè FH lineæ FE transferre oportet puncta longitudinis, ducendo lineas ad punctum distantiæ. Hac industria perficies utramque deformationem, quarum una geret minus vestigiis, altera elevationis. Utrobique autem designabis lineas terminativas partium coronicis, ac sectionum C & D.

The Eighty-fourth Fig.

A CORINTHIAN Cornice.

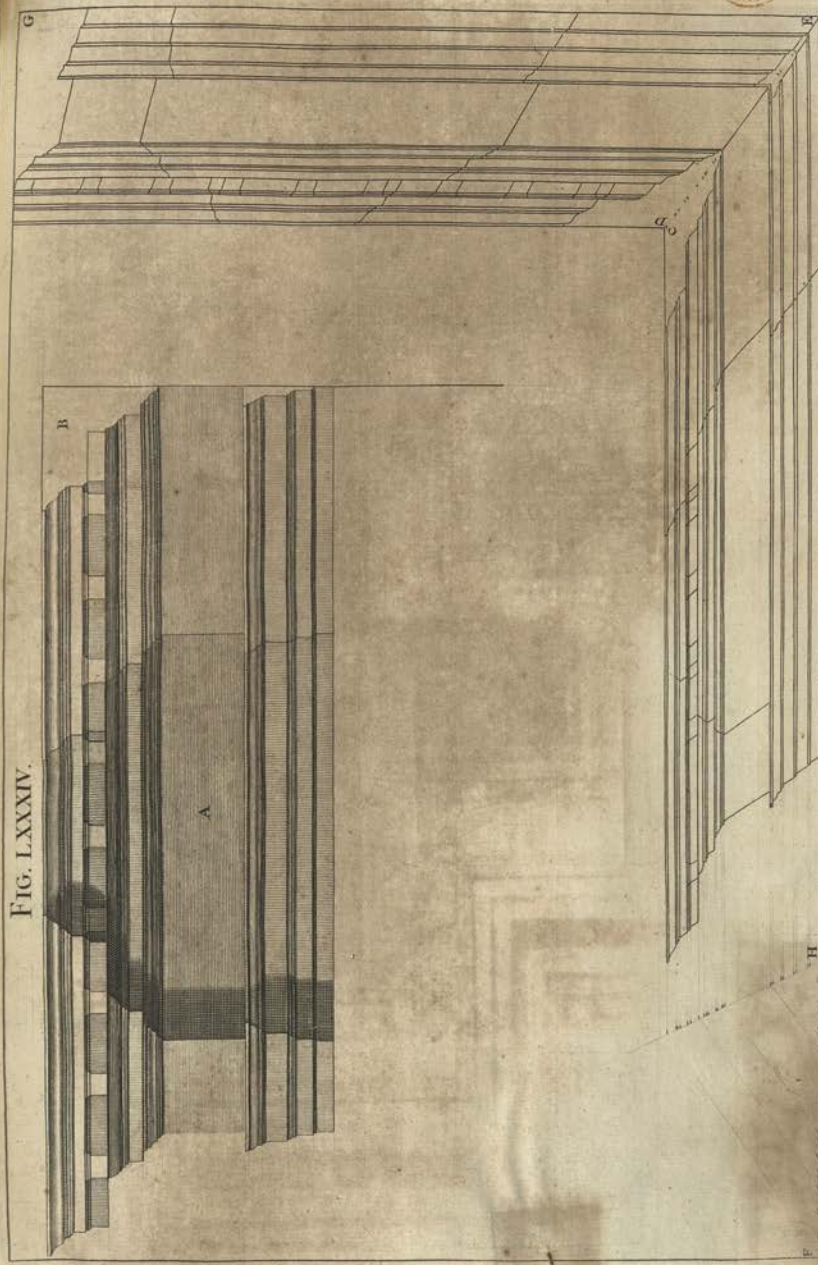


F you are to describe Cornices having Angles, admit the elevation **A** to represent one Side, and the Section **B** the other. But care is to be taken, that the Breaks of those Parts which are suppos'd to be fet directly over the Columns, do not obstruct the regular Distribution of

the Modillions. For contracting into Perspective the Elevation **A**, and the Section **B**, you must transfer into the Ground-line **EF**, and into that of the Elevation **EG**, the Points of the several Breadths made by the Projectures the Architrave, Freeze, and Cornice of the Elevation **A**; and from them draw Lines to the Point of Sight: Then on the Part **FH** of the Line **FE**, you must note the Points of Length, and draw Lines from them to the Point of Distance. By this Practice you complete these two Contractions, one of which does the Office of a Plan, the other that of an Elevation. It's also requisite, that you draw the Out-line of the Members of the Cornice on each side the Angle, and the Sections **C** and **D**.

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FIG. LXXXIV.



OFFICE
DES DEBATS
DE LA VILLE
DE PARIS

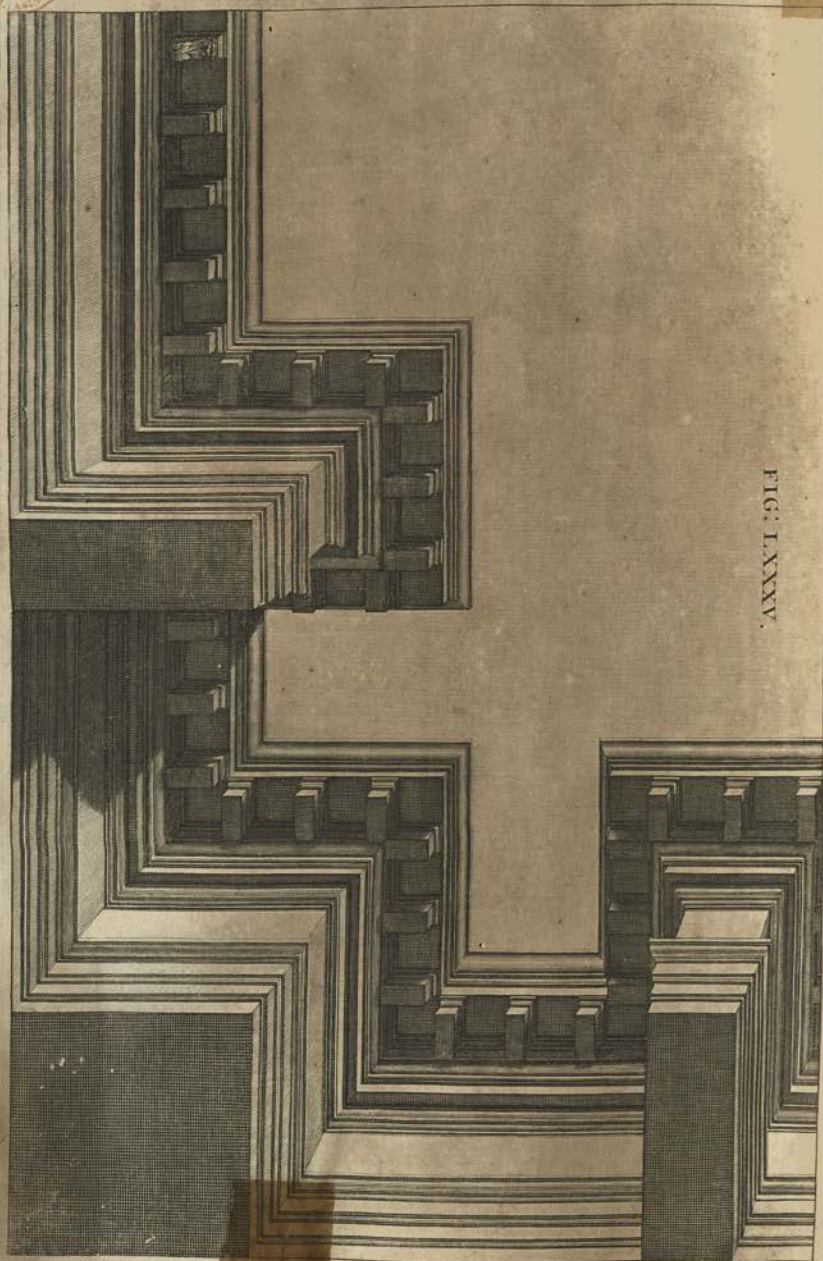


FIG. LXXXV.

Figura Octogesimaquinta.

Coronix CORINTHIA horizon-
taliter contracta.



SOLIDITAS coronicis cum
omnibus projecturis eruta
est ex vestigio & elevati-
one figure octogesimaquan-
te. Hic autem finem im-
ponimus partibus rerum, ad integra edificia
gradum facituri.

The Eighty-fifth Figure.

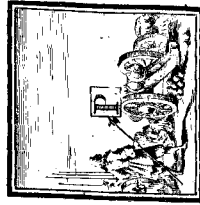
A CORINTHIAN Cornice in hori-
zontal Perspective.



THE Solidity of this Cor-
nice, with all its Projec-
tures, is deduc'd from the
Plan and Elevation of the
foregoing Figure. With
this therefore I shall conclude the De-
scription of Parts of things, and proceed
to that of entire Structures.

Figura Octogesimafexta.

Horizontalis projectio Columnæ.



OSTENDIT QUA M. fignatim defcripsimus mutuum, fyllabam, columnam & coronicem, omnia ifta conjungere placuit: ita clarius apparebit quomodo difponere oporteat delineationes geometricas, ut ex iis eruantur projectiones horizontales.

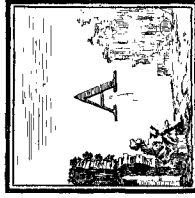
Linea plani eſt CD, perpendicularis CI.

In A eſt elevatio geometrica longitudinis columnæ, (ſupponimus columnam delineari veluti jacentem humi.) In B ejus veſtigium geometricum, cum diſſonibus latitudinis in linea ER. Puncta longitudinis transferentur in lineam plani CG, puncta altitudinis EC transferentur in CF, ducendo rectas ex diſſonibus CG ad punctum diſtantiæ, ex diſſonibus CF ad punctum oculi. Per ſeſiones vero viſuales CO erigentur perpendiculari, & complebitur elevatio H, ex qua eruetur columna nitida L.

Si ſuper veſtigio M formare placeat aliam columnam, ejus latitudines accipienda ſunt ex columna B; ac ſeſſio projicienda eſt in N, ut ex hac tanquam ex elevatione eruatür columna P. Si aliam columnam in angulo addere libitum fuerit, opo ſeſſionum HN facile illam complebis.

The Eighty-sixth Figure.

A Column in horizontal Perſpective.



FTER the ſeparate Deſcription of a Corbel, Pedestal, Column, and Cornice; I have here conjoin'd them all, that you might the better perceive how to diſpoſe Geometrical Elevations for the Buſineſs of horizontal Perſpective.

The Line of the Plan is CD, the Perpendicular CI; the Geometrical Elevation of the Length of the Column, ſuppos'd to be lying on the Ground, is A. The Geometrical Plan thereof is B, with the Diviſions of its Breadth on the Line ER. The Points of Length being transfer'd on the Line of the Plan CG, and the Points of Height EC into CF; from the Diviſions of CG Lines are drawn to the Point of Diſtance; and from thoſe of CF to the Point of Sight. From the Sections of the Viſual CO, Perpendiculars are erected, and the Elevation H completed, from whence is taken the finiſh'd Column L.

If upon the Plan M you would delineate another Column, the Breadths thereof muſt be taken from the Column B, and another Profile design'd in N, which ſerves as an Elevation for making the Column P. If another Column were requir'd in the Angle, the Profiles HN aſſist you in the ready Performance thereof.

FIG. LXXVI.

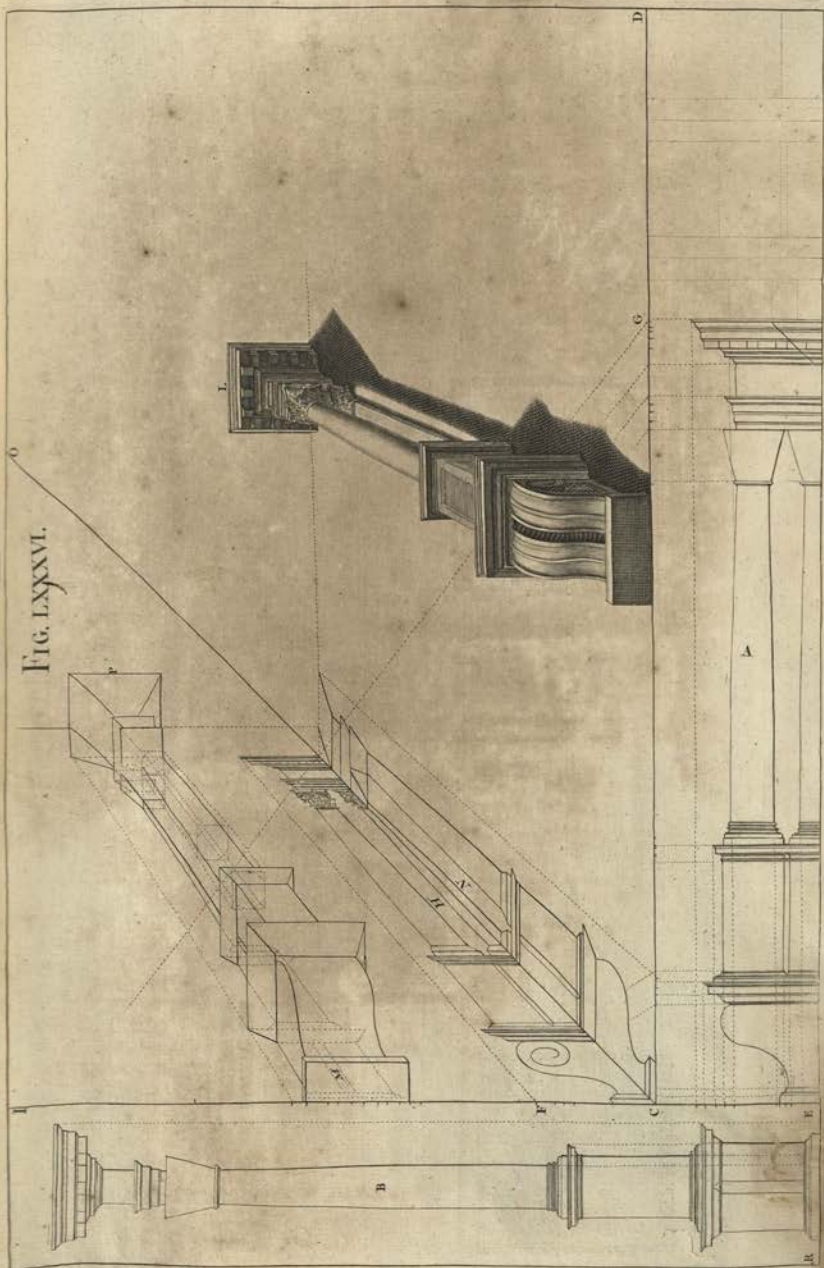




FIG. LXXXVII.

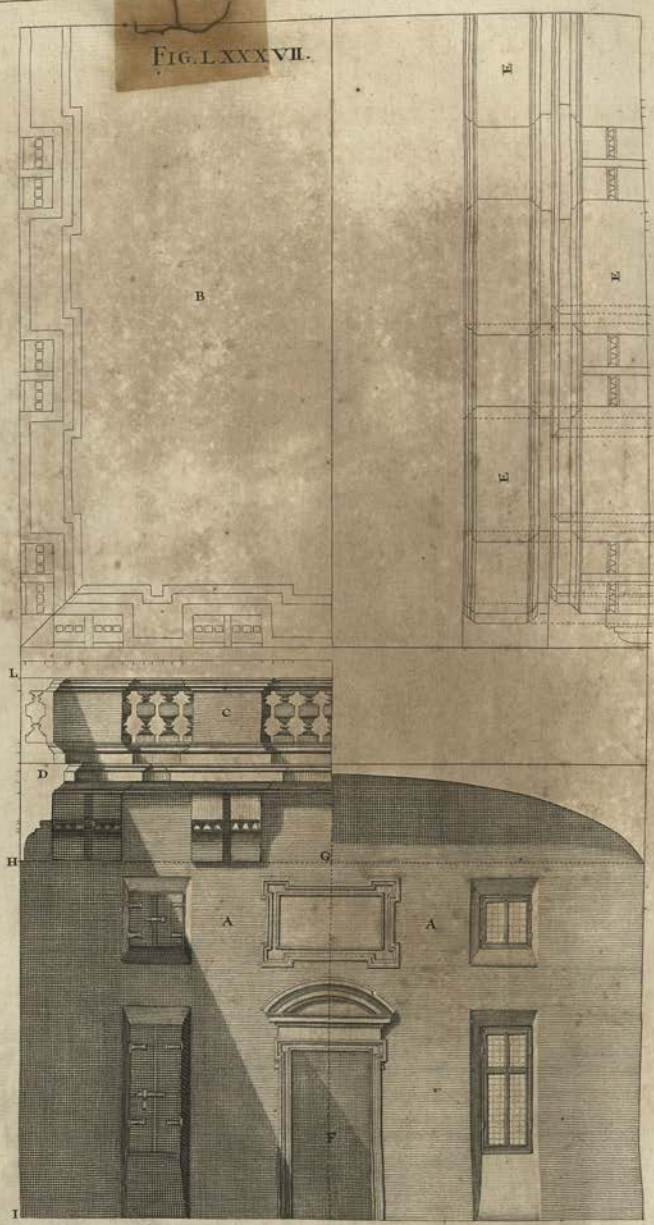


FIGURA Octogesima septima.

Præparatio necessaria ad sequentem figuram, & ad projectiones horizontales in laquearibus vel testudinibus.



XHIBET hæc figura in AA unum ex quatuor parietibus aula, cujus altitudinem veram IH velis attollere apparenter usque in L, pingendo in laqueari, vel in testudine, seriem balaustrorum. In B est vestigium geometricum quartæ partis laquearis. In C habetur elevatio medietatis latitudinis. In D est sectio coronicis & mutulorum. In E posita est elevatio medietatis longitudinis. In F est punctum oculi, in G punctum distantie: adeoque tota distantia est GF.

The Eighty-seventh FIGURE.

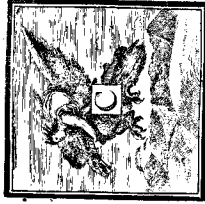
The Preparation necessary to the following Figure, and to all other horizontal Perspectives, whether on flat or vaulted Cielings.



THE Figure AA represents one of the four Walls of a Hall, whose true Height IH you would have appear rais'd to L, by painting a Balustrade in the Cieling thereof. B is the Geometrical Plan of the fourth part of the said Cieling; C is the Elevation of half the Breadth; D is the Section of the Cornice and Corbels; E is the Elevation of half the Length. In F is the Point of Sight, in G the Point of Distance; so that the Distance itself is FG.

Figura Octogesima octava.

Horizontalis projectio balaustrarum Figuræ octogesima septimæ, cum brevi distantia.



LARITATIS gratiâ totum laquear divisum est in quatuor partes. Prima continet contractionem vestigi & elevationis, quæ perspicuitur methodo consueta. Nam linea AOV est horizontalis, BC est linea plani. Tunc centrum oculi est O, distantia E. Secunda pars continet sectionem L, quæ dat projecturas mutulorum aliarumque partium, desumendas ex sectione D figuræ octogesima septimæ, deformatam eam in angulis B & C. Tercia pars completitur delineationem integram sine umbris: ultima pars eandem completitur cum umbris.

Ob punctum distantie parum remotum à puncto oculi, nimiam amplitudinem ac deformem apparentiam habere videtur hæc delineatio. Nihilominus, si ex distantia EO figuram suspexeris, omnis deformitas evanescet.

Ut focus imperitis fiat, industrii Pittoris interest parare sibi geminum exemplar suorum Operum, in quibus distantia sit nimis brevis; unum videbit palam ostendendum, in quo punctum distantie sit remotum à puncto oculi, quantum necesse est ad vitandam omnem deformitatem. Alterum vero, in ipsomet Opere clam usurpandum.

Si pignus sit testudines, oportet prius facere in eis reticularionem peculiarem; quæ quia difficilis est, & paucis explicare nequit, in aliud Opus reservatur.

The Eighty-eighth Figure.

The horizontal Projection of the Balustrade of the Eighty-seventh Figure, view'd at a small Distance.



OR the better Illustration of this Figure, I have divided the whole Cieling into Four Parts.

The *First* contains the Plan and Elevation in Perspective, after the usual manner; AOV being the horizontal Line, BC that of the Plan; the Point of Sight O, and that of Distance E. The *Second* Part contains the Section L, which gives the Projectures of the Cornels and other Parts taken from the Section D of the Eighty-seventh Figure, by drawing it in the Angles B and C. The *Third* Part comprehends the delineation of the Perspective without Shadows. The *Fourth* Part contains the same wholly shadow'd and finish'd. Thro' the near Approach of the Point of Distance to the Point of Sight you may perhaps imagine this Draught will appear too wide, and to have an ill Effect: But when once you view it from its due Distance E O, you will find all such Doubts vanish and come to nothing.

When you have to deal with Persons unskill'd in these things, and are to paint for so small a Distance; your best way is to make two Draughts; one for publick Shew, in which you may place the Point of Distance so far from the Point of Sight, as is necessary for preventing Deformity; and the other you may privately make use of in performing your Work.

If you are to paint arch'd or vaulted Cielings, a particular kind of Net or Lattice-Work must first be made therein; the Performance whereof being difficult, and not capable of being explain'd in few Words, I have reserv'd it for another Volume.

FIG. LXXXVIII.

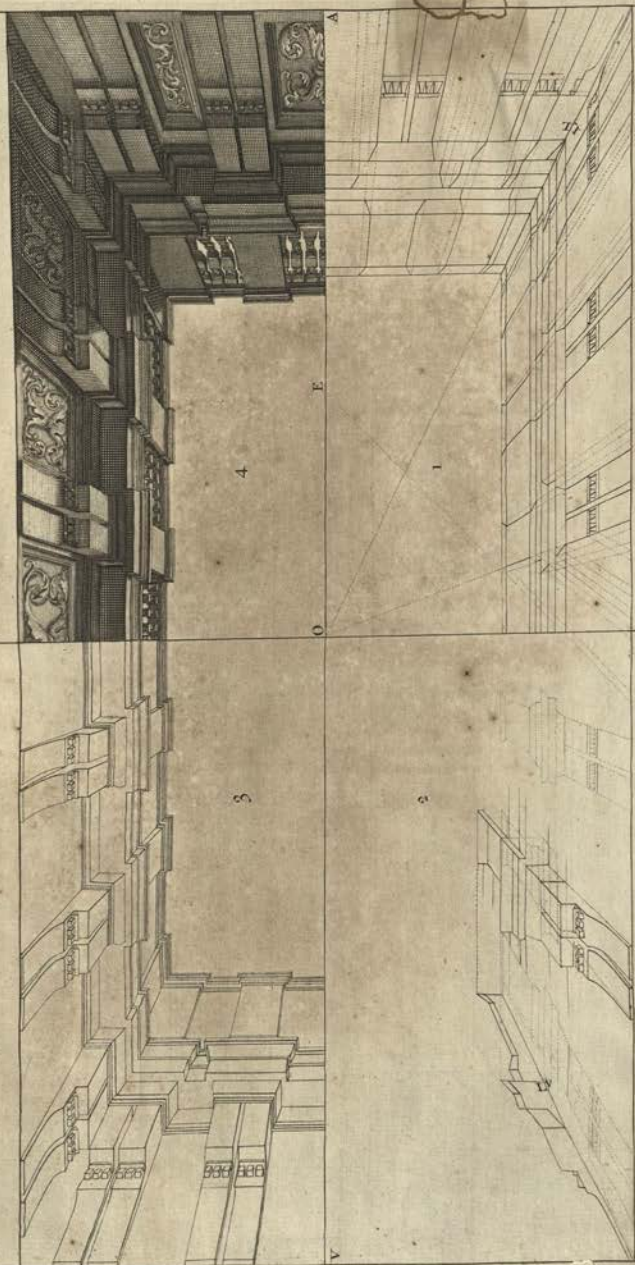


FIG. LXXXIX.

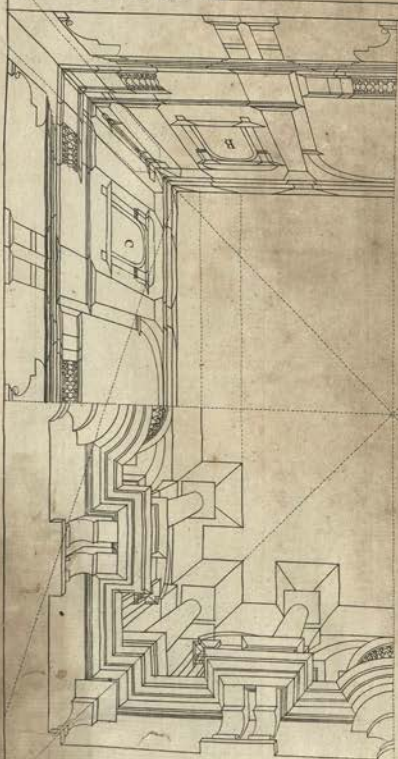
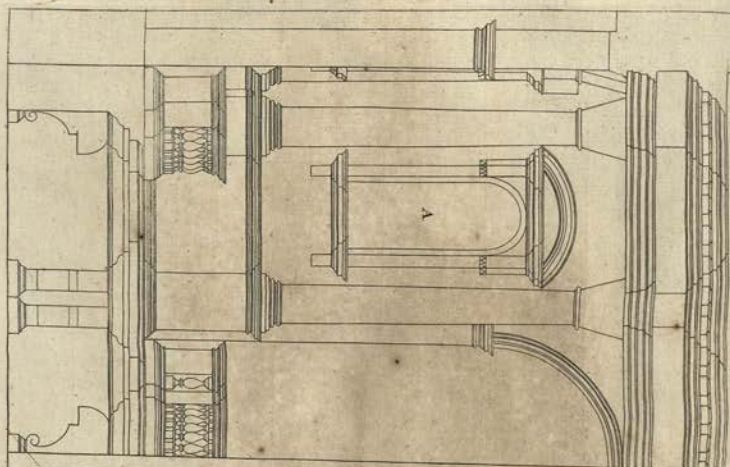


Figura Octogesima nona.

Horizontalis projectio architecturæ
in laqueari quadrato.



I laquear sit quadratum, & valde distans ab oculo, architecturam huic similem in eo depingere licebit. A est elevatio geometrica; eadem vero deformata in B & C, gerit munus vestigiæ elevationis. Medietas unius ex quatuor partibus, usui esse potest in toto opere, aut premendo chartam, aut eâ perforatâ, immittendo per foramina carbonem minutissimè confusum.

The Eighty-ninth Figure.

*An horizontal Projection of Architecture
in a square Ceiling.*



IF the Ceiling be square, and very remote from the Eye, you may paint in it some such Piece of Architecture as this. A is the geometrical Elevation; the same reduced into perspective in B and C does the Office of a Plan and Elevation. The Half of one of the four Parts may suffice for the Draught of the whole Work, either by tracing over the Lines of the Paper, or by pricking small Holes therein, and pouncing them through with Charcoal finely powder'd.

FIGURA Nonagesima.

Horizontalis projectio tholi.



NITUM huius rei fiet à vestigio geometrico, in quo due serice circulorum designant columnas, alie linee designant stylobatas, ac projecturas & angulos basium & conicum. Linea pluri est AB, horizontalis CD, perpendicularis AD. Punctum oculi est O, distantie D; adeoque figura hac debet habere supra oculum altitudinem DO. Punctum oculi positum fuit extra ipsum tholum, ut qui eum aspicit, minus deturgetur, ac plus appareat de architectura & de artificio. Necesse vero contingeret si punctum oculi esset in medio. Inque puncta linee EF vestigii transferretur in AG partem linee AD. Centrum I vestigii transferretur in H, & ex omnibus his punctis fient visuales ad O. Deinde altitudine tholi, ac divisionibus partium singularum tum ipsius, tum laterum, translatis in lineam AB, ex punctis divisionum fient recte ad punctum distantie D. Ubi autem hae fecant visuales AO, eriguntur perpendiculara, quorum sectiones cum visuali HO dabunt centra pro singulis circulis. Inter visuales AG ducere oportet lineas terminativas columnarum & conicum; quemadmodum fieret, si ex vestigio eruta fuisset elevatio geometrica. His positis, aggregatis delineationem optiam ipsius tholi, translatis in perpendiculararem EO centris ope parallelarum HI, LN; ac semidiametro LM, fiet circulus NP pro sima conicis: semidiametro ST, fiet circulus QR, & sic de reliquis. Quomodo autem per rectas ex angulis vestigii ad punctum oculi, habeantur anguli conicis, ostendunt numeri 1, 2, 3, 4; linee vero laterales angulorum tendunt ad centra suorum circulorum, ut videre est in N. 3. 4. In vestigio, ne nimium occupetur, multos omisimus.

Ex his patet necessitates faciendi vestigium geometricum totius tholi, ac non sufficere vestigium unius columnae; quum singulae penitentes exigant deformationes. Quum autem Opus ipsum delineandum ac pingendum fuerit, ipsum deservire non poterit ex parvo exemplari, ope reticulatis: Quinimo suis locis ducere oportebit lineas visuales, & invenire centra omnium circulorum. Figendo autem finitulum in singulis centrīs, ipsius adjuvamento facillime adhibebis omnes circumferentias.

The Ninetieth Figure.

A Cupola in horizontal Perpective.



IN the Execution of this Work, you are to begin with the Geometrical Plan; in which the two Ranges of the Circles denote the Columns, the other Lines shew the Pedestals, with the Projectures and Breaks of the Bases and Cornices. The Line of the Plan is AB, that of the Horizon CD, the perpendicular Line is AD. The Point of Sight is O, that of Distance D; wherefore this Figure ought to be plac'd as much above the Eye, as the Height DO. I have let the Point of Sight something without the Cupola, that the Eye might be less weary d'n viewing the Work, and take in more of the Architecture, than it could have done, had the Point of Sight been in the midst.

The Points of the Line EF are transfer'd into AG, part of the Line AD. The Centre of the Plan I is continu'd to H, and from all these Points vital Lines are drawn to O. Then placing the Heights of every part both of the Cupola and Lantern on the Line AB, from the Points of those Divisions draw Lines to the Point of Distance D; and where they cut the Visual AO, erect Perpendiculars intersecting the Line HO; which Points are the Centres of the several Circles. On the Visuals, between AG, must be describ'd the Out-lines of the Columns and Cornices, in like manner as when a Geometrical Upright is rais'd from a Plan. This done, you proceed to the Delineation of the Cupola itself in Perspective, by transferring into the Perpendicular EO the several Centres of HO, by Parallels to HI, as LN, &c. On the Centre, with the Interval LM, describe the Circle NP, for the Note of the Cornice; and with the Semidiameter ST describe the Circle QR, and so of the rest. The Numbers 1, 2, 3, 4, shew how the Breaks of the Cornice are determin'd by Lines from the Angles of the Geometrical Plan tending to the Point of Sight, till they intersect the Circle: The Returns of which Breaks are made by Lines tending to the Centres of their respective Circles; as is plain from N. 3. and N. 4. In this Plan I have omitted the Corbels, lest I should too much incumber the Work.

Hence appears the Necessity of making the Geometrical Plan of the whole Cupola, the Plan of a single Column not being sufficient; by reason each requires its particular Delineation. And when the Work itself is to be drawn for painting, you can't well take it from a small Draught by way of Net-work or Squares, but the vital Lines should be drawn in their proper places, and their several Centres found; in which, by fixing Strings, you may readily describe the Circumferences of all the Circles.

FIG. XC.

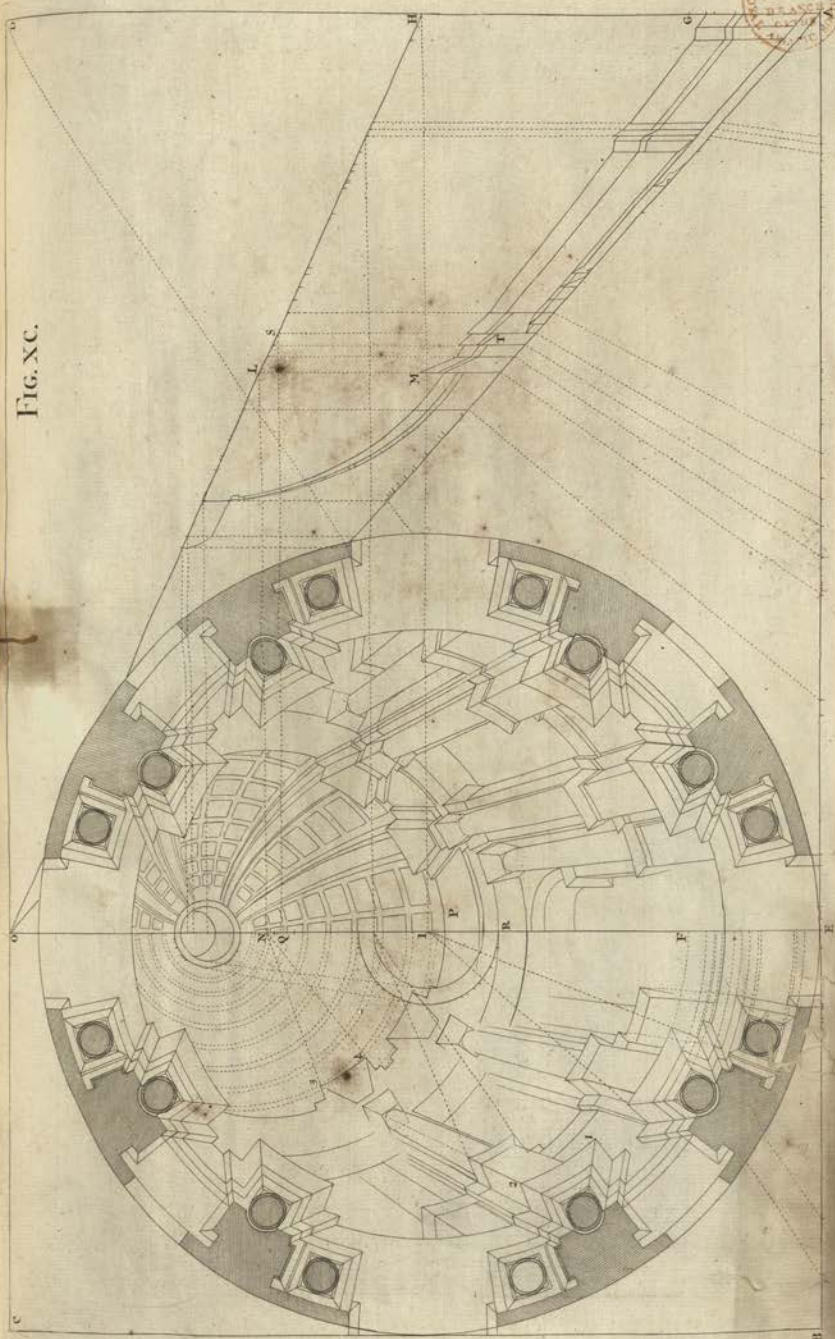


Fig. XCI.

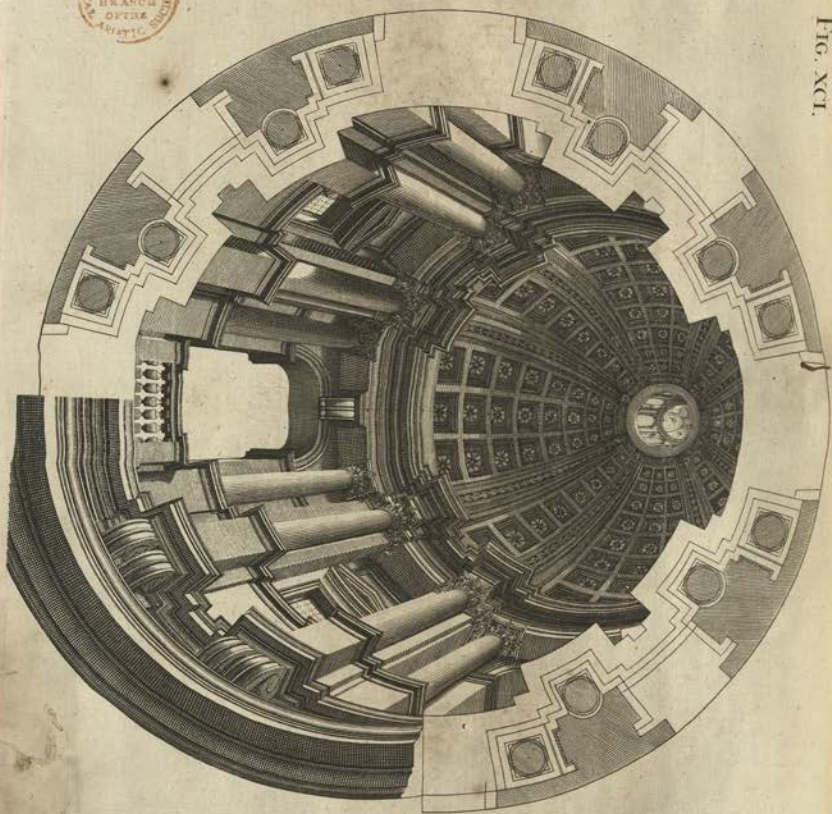


Figura Nonagesima prima.

Tholus Figura nonagesima, cum luminibus & umbris.



HOLUS quem vides in hac pagina, pollicetur sibi vitam diuturniorem illo, quem super telario plano insignis amplitudinis, depinxit anno 1685. in Templo S. Ignatii Collegii Romani.

Proinde si casus aliquis illum absumat, non deerunt qui ex isto eundem in melius reficiant. Mirati fuerunt Architecti nonnulli; quod columnas interiores mutulis imposuerim, id enim in solidis edificiis ipsi non facerent. Verum eos metu omni liberavit amicissimus mihi Pictor, ac pro me respondit, damnum omne se statim reparaturum, si fatiscientibus mutulis, columnas in præceps ruere contingat.

The Ninety-first Figure.

The Cupola of the Ninetieth Figure, with its Lights and Shades.



THE Cupola in this Plate will in all likelihood be of longer Duration, than that which I painted on a very large Table, for the flat Ceiling of the Church of

S. Ignatius of the Roman College, anno 1685. For if that suffer by any Accident, with the Help of this its Place may be supply'd by a better: Some Architects dislike'd my setting the advanc'd Columns upon Corbels, as being a thing not practis'd in solid Structures; but a certain Painter, a Friend of mine, remov'd all their Scruples, by answering for me, That if at any Time the Corbels should be so much surcharg'd with the Weight of the Columns, as to endanger their Fall, he was ready to repair the Damage at his own Cost.

Fig. Nonagesimafecunda.

Tholus octangularis.



X circulo fiet octagonum, accipiendo medietatem quadrantis circuli, ut habeantur singula latera octagoni. In eisdem lateribus distribuetur vestigium geometricum totius architecturae, cum projecturis omnium membrorum, juxta modum quem servavimus in limbo circuli figure nonagesimae. Utiliter

etiam fieret elevatio geometrica totius Operis; quamvis ob spatii angustias ego eam omiserim. Deinde posita una cuspidem circuli in centro circuli, extendetur alia cuspis ad altitudinem singularum projecturarum inter spatium A & B, ut hic vides: atque ope parallelarum, omnia transferentur in lineam CD, ut fiat optica deformatio, quam poscit sectio elevationis, cum aliis preparationibus, ut in figura praecedenti. Nam hic quoque ope circularum invenire oportet puncta extrema in prominentiis membrorum fagularum architecturae; ut conjungendo puncta per lineas rectas, quae formant facies octagoni, compleatur totum Opus.

The Ninety-second Fig.

An Octangular Cupola.



FROM the Circle describe the Octagon, by taking half the Quadrant of the former for each Side of the latter. On these Sides the Geometrical Plan of the whole Architecture is to be dispos'd, with the Projectures of all the Members thereof, in the same manner as was done in the circular Border of the Ninetieth Figure. It will also be expedient, to make the Geometrical Elevation of the whole Work, thro' Want of Room I have here omitted it. Then placing one Point of the Compasses in the Center of the Circle, extend the other to the Height of the several Projectures between A and B, as you see in the Figure; and by help of the Parallels transfer them all into the Line CD, for putting the Profile of the Upright into Perspective, and drawing the other Requisites, as in the foregoing Figure. For here also, by means of the Circles, are found the extreme Points of the Projectures of the several Members of the Architecture; and by conjoining these Points with straight Lines agreeable to the Shape of the Octagon, the whole Work is completed.

OFFICE
PATENT

FIG. XCII.

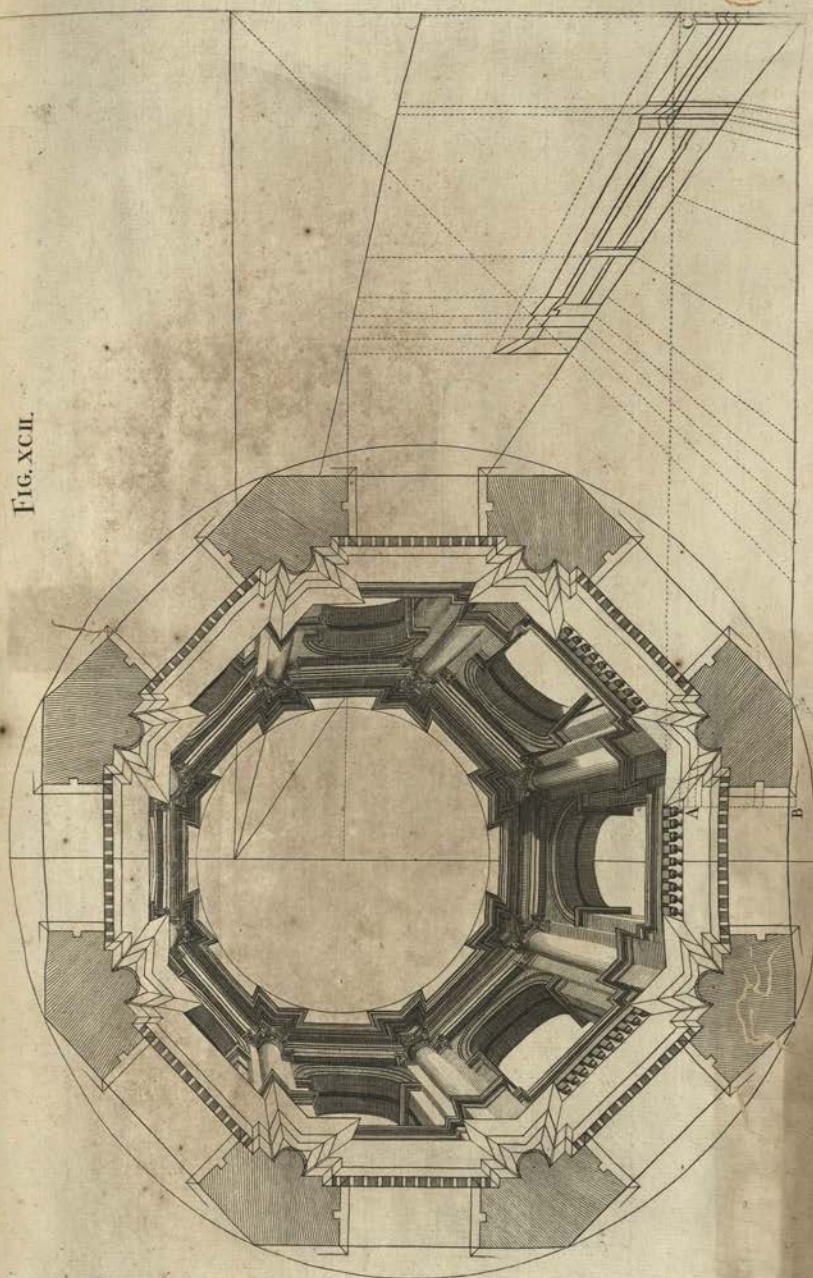


FIG. XCIII.

LIBRARY
OF THE
BOMBAY
BRANCH
OF THE
ASIATIC SOCIETY

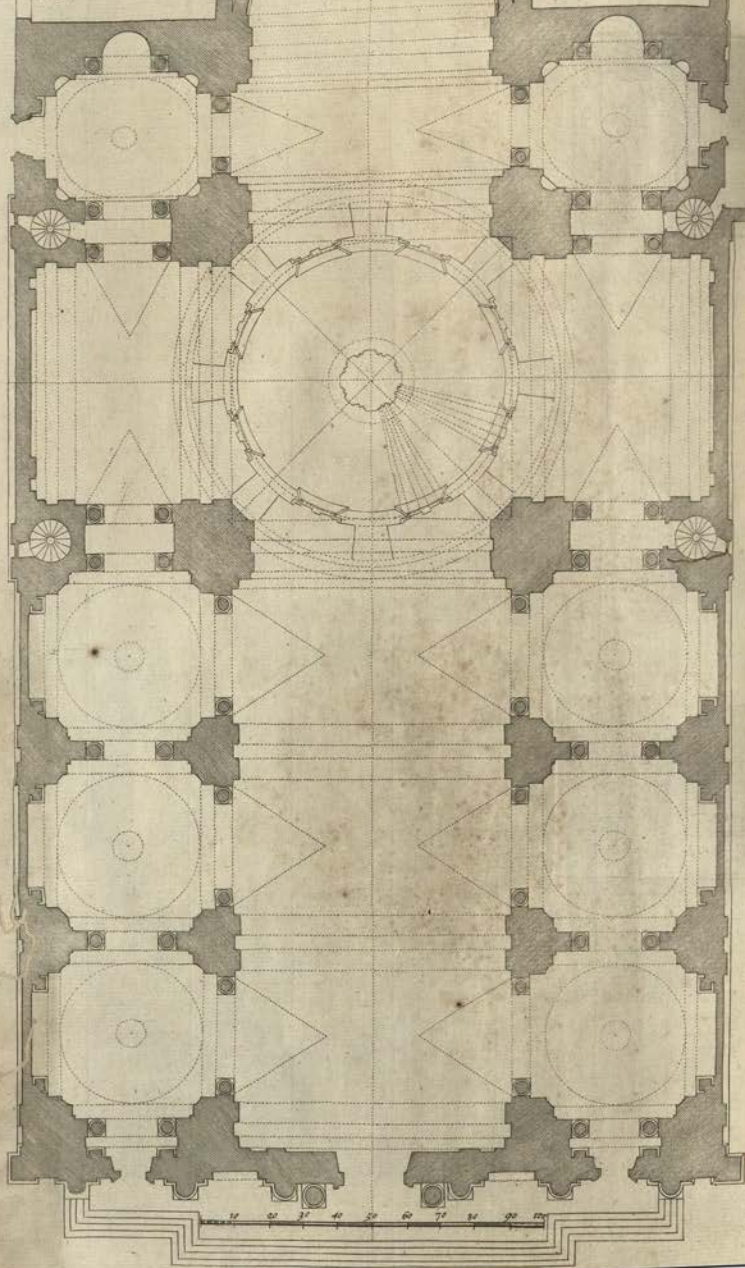


FIGURA Nonagesimatertia.

Vestigium templi Ludovisiani S. Ignatii almæ urbis.



ONSTITUERAM huic Libro finem imponere figura nonagesimasecunda; nihilominus ut satisfaciam precibus amicorum, cupientium addiscere modum reticulationis opticae, quæ adhibetur in superficiebus irregularibus, ejusque memini figurâ octogesimoctavâ publici juris facere decrevi ejus construendæ methodum. Ipsismet retis ope delineavi non solum ædificium mox repræsentandum, sed etiam figuras omnes testudinis templi Ludovisiani, in qua pingenda nunc occupor.

Eademque reticulatione, quæ erit ultima figura hujus Libri, dabimus Operi nostro suum complementum; quum nulla sit superficies, in qua suas delineationes juxta Perspectivæ regulas, earum rerum Studiosi absolvere nequeant.

Exhibet hæc figura vestigium totius templi. Quamvis enim non indigeam nisi testudine inter januam maximam & tholum; proderit nihilominus Architecturæ Studiosis, universi Operis elegantiam ac symmetriam per otium contemplari.

The Ninety-third FIGURE.

The Geometrical Plan of the Church of S. Ignatius at Rome.



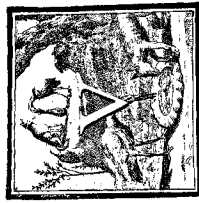
Had once determin'd to end this Book with the Ninety-second Figure; but at the Request of some Friends, who were desirous to learn the Making of Perspective Net-Work for irregular Surfaces, as was hinted in the Eighty-eighth Figure; I resolv'd to publish the Manner of performing the same. By the Help of this Net-Work, I delineated not only the Architecture now to be treated of; but also each Figure in the Vault of the Church of

S. Ignatius, which I am at present employ'd in painting. The Method is laid down in the last Figure of this Book, and entirely compleats the same; there being no Superficies, how irregular soever, but the Studios may thereon describe, by these Rules, whatever Perspective he has occasion for.

This Figure contains the Plan of the whole Church; for tho my present Design requir'd no more than the Vault of the Nave, between the great Door and the Cupola; I thought it might be nevertheless acceptable to the Curious in Architecture, to have a View of the whole Design, so celebrated for the Elegancy and Proportion of its Parts.

Fig. Nonagesimaquarta.

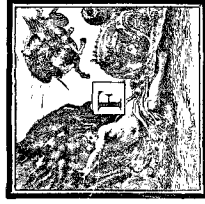
Orthographia Templi Ludovisiani.



T magis tibi gratificer, orthographiam seu elevationem templi Ludovisiani in longum dissecti delineavi, cum omnibus mensuris quæ vestigio sunt communes; addito tholo juxta ideam Autoris. Ejus autem nondum constructi loco, positum est in A & B telarium cum tholo depicto, de quo supra in figuris nonagesimâ & nonagesimâ primâ.

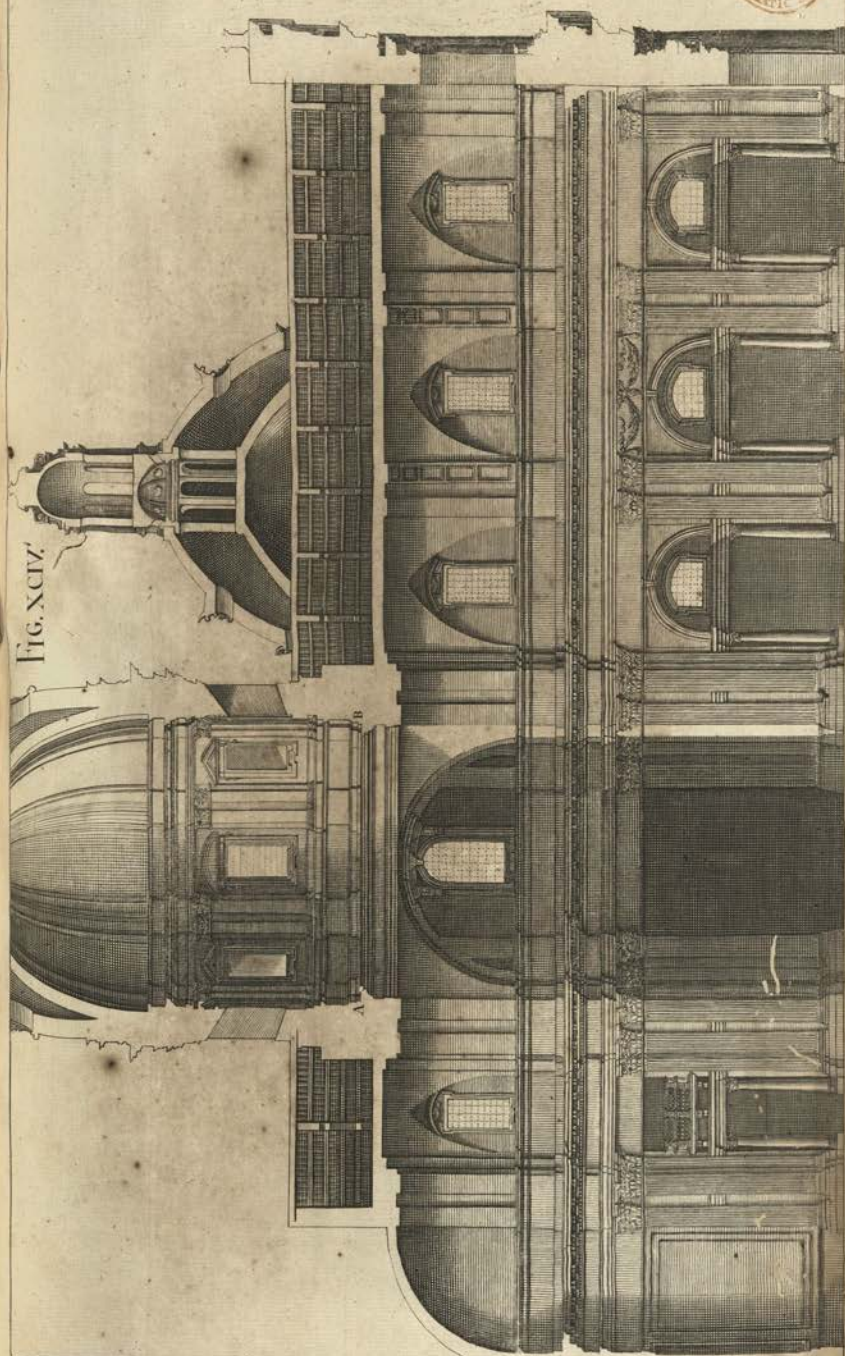
The Ninety-fourth Fig.

The Orthography, or Geometrical Elevation of the Inside of S. Ignatius's Church.



OR your greater Satisfaction, I have here given the Geometrical Upright of the Church dissected lengthwise, with all its Measures agreeable to those of the Plan; as also the Cupola design'd by the Author; Which not being yet built, instead thereof is plac'd between A and B, the painted Cupola before describ'd in the Ninetieth and Ninety-first Figures.

FIG. XCV.





PLATE

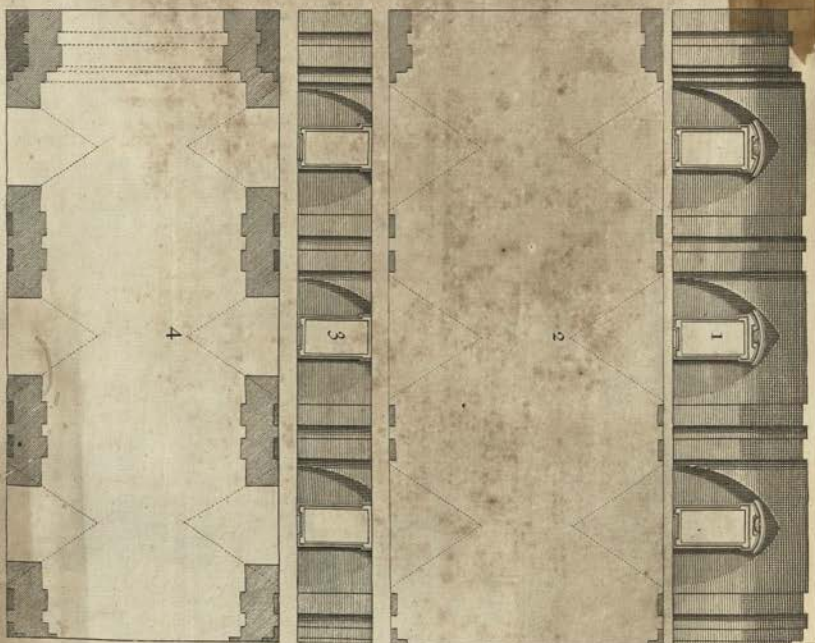


Fig. Nonagesimaquinta.

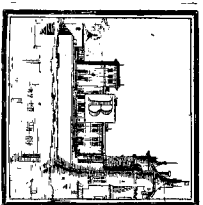
Aliæ preparationes ad figuras nonagesimanonavam & nonagesimanonam.



X hac *Figura*, in quatuor partes divisa, discas ex uno intuitu methodum qua sum auspiciatus opticam delineationem templi *Ladocisani*. Prima pars exhibet latus dextrum testudinis inter januam templi ac tholum. Secunda pars continet vestibulum ejusdem testudinis, arcibus ac lunulis distinctæ. Tertia pars continet latus dextrum testudinis usque ad summam fenestrarum, unde incipit *Architectura quam pingimus in fornice*. Quarta pars est vestibulum Geometricum fornicis, cum prominentia quam habent arcus in summitate jam dicta fenestrarum. *Fingimus autem eandem esse soliditatem, tum edificii depicti, tum vasculi templi; solæ enim columnæ, quæ respondent pilis templi, prominent extra ædificium.*

The Ninety fifth Figure.

Other Preparations to the Ninety-eighth and Ninety-ninth Figures.



Y this Figure divided into four Parts, you will at first Sight perceive the Method I observ'd in beginning the Perspective Design of this Church of *S. Ignatius*. The first Part shews the right-hand Side of the Vault between the Door and the Cupola. The second contains the Plan of the same Vault, with its Arches and Lunettes. The third Part represents the same right-hand Side, to the top of the Windows; where begins the Architecture painted in the Vault. The fourth Part contains the Geometrical Plan of that part of the Vault which is painted; with the Lunettes made by the Arches above the Heads of the aforesaid Windows. The Disposition of the painted Architecture above, is the same with that of the Nave of the Church; save that, answerable to the Pilasters below, I have suppos'd Columns projecting over the Work.

Figura Nonagesimafexta.

Aliae præparationes ad figuras nonagesimam octavam & nonagesimanonam.

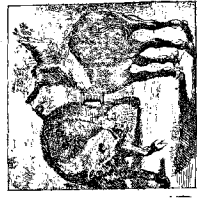


R I M A pars figuræ hujus trifariam divisæ, repræsentat elevationem geometricam lateris templi supra coronam, & ædificii in testudine pingendi.

Secunda pars complectitur arcum testudinis maximum, & elevationem geometricam faciei ejusdem ædificii. Tertia pars exhibet vestigium totius ædificii pingendi in testudine, cujus amplitudo eadem est cum amplitudine navis, ut antea dicebamus. Porro vestigium geometricum non minus necessarium est ad pingendum ædificium, quàm ad ipsum ex materia solida extrudendum, ut alibi monuimus.

The Ninety-sixth Fig.

Other Preparations to the Ninety-eighth and Ninety-ninth Figures.



N this Figure, which consists of three parts, the *first* represents the Geometrical Elevation of the Right side of the Nave above the Cornice, and of the Design painted in the Vault. The *second* contains the

great Arch of the Vault; and the Geometrical Elevation of the Front of the said Design. The *third* part shews the Plan of the whole Work painted on the Vault, the Extent and Disposition of which is the same with that of the Nave, as before mention'd. The Geometrical Plan, as I have formerly hinted, is no less necessary for the painting a Design in Perspective, than it is for raising a Structure with solid Materials.

FIG. XCVI.

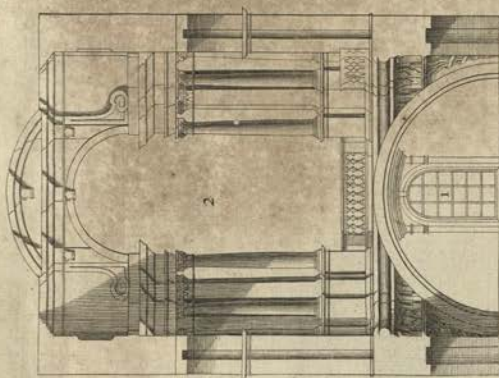
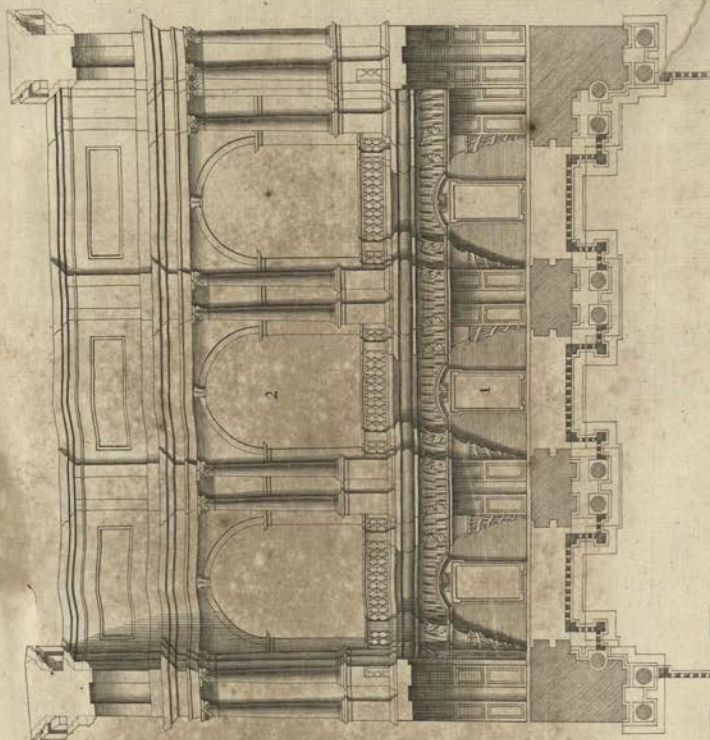


FIG. XC VII.

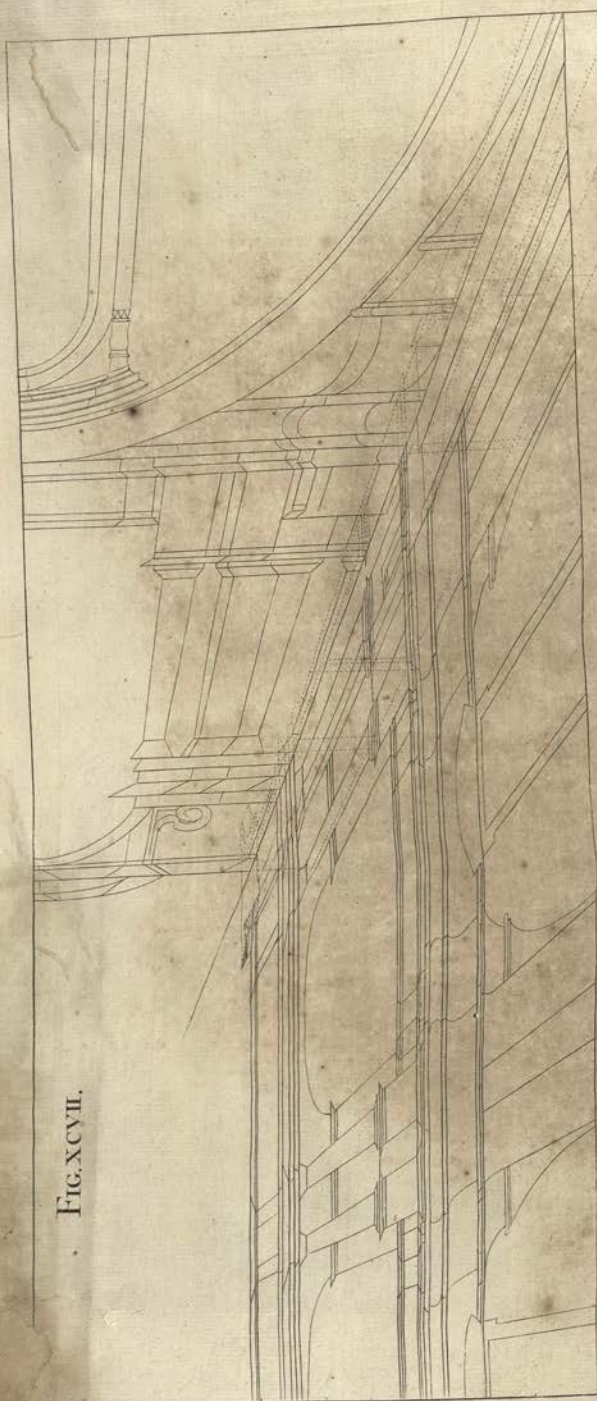


Fig. Nonagesima Septima.

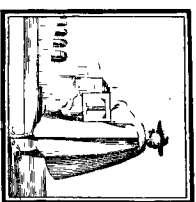
Alia preparatio ad figuras nonagesimam-
octavam & nonagesimanonam



T optica projectio vestigi &
elevationis quartæ partis to-
tius Operis distinctior eva-
deret, mensuras partium
singularum quadruplicavi,
eandemque methodum in hac
delineatione tenui, quæ figuris octogesima sex-
tâ, octogesima septimâ, octogesima octavâ, &
octogesima nonâ, explicata fuit. Punctum
oculi positum est in medio navis Ecclesiæ;
punctum distantie est in lineâ ex quâ incipit
arcus testudinis.

The Ninety-seventh Fig.

*Another Preparation to the Ninety-eighth
and Ninety-ninth Figures.*



HAT the Perspective of
the fourth part of the
Plan and Elevation of this
Work might be more di-
stinct, I have in this Fi-
gure made the Measures
of each part four times as big as in the for-
mer; and have kept the same Method in
this Delineation, as was deliver'd in the
Eighty-sixth, Eighty-seventh, Eighty-
eighth, and Eighty-ninth Figures forego-
ing. I have set the Point of Sight in the
middle of the Nave of the Church; and
the Point of Distance is in the Line from
which the Arch of the Vault springs

Fig. Nonagesima octava.

Quadrans Architecturæ horizontalis in fornice, cum luminibus & umbris.



ABES in hac paginâ quadrantem totius Operis, modo consueto erutum ex præcedenti: nimirum, cuspidem circini ex angulis vestigiis accipiuntur lineæ perpendiculares; ex angulis verò elevationis desumuntur lineæ paralelæ; ac lineæ visuales ad punctum oculi.

The Ninety-eighth Fig.

A Fourth Part of the Architectonical Design, painted on the Vault of S. Ignatius's Church; with its Lights and Shadows.



In this Figure you have a Quarter of the whole Work, drawn from the foregoing Figure after the usual Manner; namely, by taking with the Compasses the perpendicular Lines from the Angles of the Plan; and the parallel Lines from those of the Elevation, as also the visual Lines to the Point of Sight.

FIG. XXVIII.

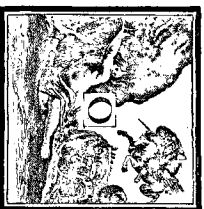




Pl. XLIX.

Figura Nonagesimanona.

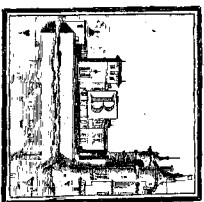
Alter quadrans totius Operis.



B diverſitatem duorum quadrantum, tum in longitudine, tum in luminibus & umbris, ſeorſim apponendum utrumque cenſui; ut in eis delineandis omnem difficultatem tibi adimerem.

The Ninety-ninth Fig

Another Quarter of the whole Deſign.



Y reaſon of the Difference of the two Quarters, as well in Length, as in their Lights and Shadows, I reſolv'd to deſcribe them ſeparately, that you might find no Difficulty in deſigning the whole Work.

FIGURA Centesima.

Modus reticulationis faciendæ in
testudinibus.



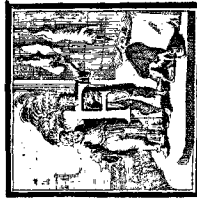
*P*ERA quæ sunt in planis, contenta sunt duplici reticulatione, ut notum est. Nam una earum fit in exemplari, altera fit in superficie in quâ ipsam Opus pingendum est. At vero testudines exigunt tres reticulationes. Prima fit in exemplari, quod supponimus delineationem esse juxta regulas Perspectivæ horizontalis. Secunda reticulatio consistit ex finibus in M. Locum ubi hendi sunt elevati qui sustinent finiculus, exhibent rectæ AB, EF: optica vero deformatio rectæ est in N. Præterea oculi est O, distantie est L O. Itaque si imaginem, tempore nocturno, lumen candelæ aut lucernæ existere in O, atque à reti ex finiculis projici lineas umbriferas in testudinem, eademque linee penicillo colorentur, habebitur tertia reticulatio ad pingendam testudinem necessaria.

Dixi si imaginis, quia in testudinem obductam tabulato, ac remotam à reti, & multo magis à lumine, vel projici nequeunt umbræ, vel nequeunt esse vivide ratem fieri, ut oportet. Itaque ubi nimis fuerit distantia, figes in O extremi-
dele, ad notandum umbræ locum. Proderit etiam, ut super tabulato motum sit obsecudes lumine alienius candelæ, quod ipsi filo proxime admoveas. Atque his aliisque administris, itaque industria, colores induces super lineis umbriferas, ac tertiam reticulationem absolvas. Possit etiam rete ex filo fieri in parvâ distantia à cornicæ, puta in GH, unde incipit basis ædificii: tunc autem umbræ in for-
nice sunt magis distinctæ ac visibiles.

Diligentissimè curabis, ne mensura exemplaris discrepent allatens à mensuris
testudinis: ac rete incidens in angulos, arcus, aut hanculæ testudinis, exactè re-
spondeat reti exemplaris. Dum in si in vitia que emendari nequeant, incidere
notis, scito, regulas omnes Perspectivæ horizontalis, acque in hominibus aut ani-
malibus, ac in columnis aut cornicibus pingendis, omnino servari oportere.

The Hundredth Figure.

The Method of drawing the Net or Lattice
Work on Vaults.

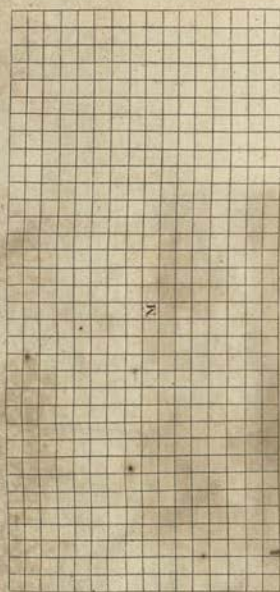
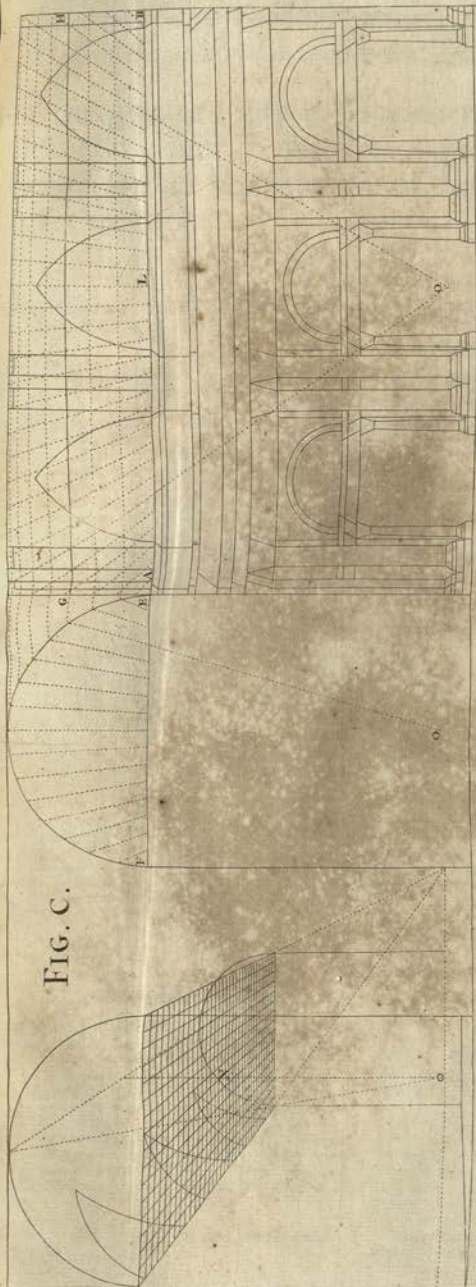


*O*R Works on a flat Surfaces, two Net-works are sufficient; as has been already intimated: One drawn on the Copy; the other on the Table to be painted. But for arch'd Surfaces or Vaults, three are requir'd. One made on the Copy, which I suppose drawn according to Rules of Horizontal Perspective. The second consists of a Frame of small Cords or Threads, to be hung up; the Geometrical Form of which is M. The Lines AB, EF, shew the Place where this Frame is to be fix'd, in the same manner as the Perspective N. The Point of Sight is O; of Distance L O. Therefore, if you imagine a Lamp or Candle fix'd in the Night-time at the Point O; the Shadows of the Thread, thrown thereby on the Vault, being trac'd by a Pencil, make the third Net-work requir'd for painting the same.

I say, if you imagine a Lamp thus fix'd; because either the Scaffold to the Vault, or the great Distance of the Thread, thrown thereby on the Vault, will render them too faint, as not to be distinct enough for the purpose. Therefore, where this happens, instead of the Light fix one End of a Thread in the Point O; and extending the other to the Vault, make use of it as a Ray from the Lamp or Candle, for describing the Place of the Shadows. It will be also of great use, to second the Motion of the Thread with the Light of a Candle you may have by you on the Scaffold, holding the same near the Thread itself. By this, and other such Helps, which your own Industry will suggest, You may lay these Shadows in Colours, and complete the third Net-work requir'd. The Frame of Threads may also be fix'd nearer the Vault at some Distance above the Cornice, as GH, where the painted Architecture begins; for the Shadows thrown on the Arch will by that means become more visible and distinct.

You must be very careful, that the Measures of your Copy are exactly the same with those of the Vault, that the Net-work thrown into the Angles, Arches and Lunettes of the Vault, may perfectly correspond with that of your Copy. Lastly, if you would not run into inextricable Errors; assure yourself, that all the Rules of Horizontal Perspective are as strictly to be observ'd in the Figures of Men or Animals, as in painting Columns, Cornices, or the like.

FIG. C.



Ut Perspectivæ Tyronibus consulerem, qui fortasse non adeo facile percipient duodecim primas figurarum explicationes, totidem novas explicationes hic addo.

For the greater Help to Beginners, and those who are less conversant in the Art of Perspective, I here subjoin a farther Explanation of the first Twelve Figures of this Book.

F I G. I.

Explicatio linearum plani, & horizontalis, punctorum oculi, & distantia; de hoc ultimo præliū.

An Explanation of the Lines of the Plan and Horizon, and of the Points of Sight and Distance; but more especially of this last.

TRES lineæ diverſi inter ſe nominis, & muneris, item, & duo puncta præcipue neceſſaria ſunt, ut delineatio quælibet optice reddi queat: prima vocatur linea plani, ſecunda horizontalis ubi eſt punctum oculi; de tertia loquar in elevationibus: alterum de duobus punctis aſſignatur oculi, & quilibet dicitur punctum oculi; alterum vero aſſignatur diſtantiæ, à qua nomen habet. Punctum oculi noſſimum eſt, punctum vero diſtantiæ non ita; in huius igitur explicatione morabor, & ut clariuſ oſtendam quid ſit, & quomodo ſervandum ſit, ſelegi deſcriptionem Eccleſiæ geometricè habitam, quam in tres partes diviſi, in veſtigium, ſeſſionem, & interiorem faciem, in qua facie vellet qui ſingere, ſeu delineare aliquid optice, ut elongetur ad meſuram apertæ quadrati P, ut habes in ſeſſione, & ad meſuram profunditatis Q, quam habes in ſeſſione.

Super faciem CCCC, quem puta eſſe delineamentum, habes rationem, qua debet diſponere ſupradicta puncta, & lineas. **H**I erit linea plani: **N**ON erit linea horizontalis, qua fieri ſolet diſtanti à linea plani altitudinis hominis, ut vides in **B**. Punctum oculi erit in **O**; punctum diſtantiæ erit in **N**, ex qua parte malueris. Hac punctum **N** debet tantum abeſſe à puncto **O**, quantum tuo arbitratu tu vis procul eſſe ut videas profunditatem illius quadrati **PQ**, ſicut vides in exemplo veſtigii, & ſeſſionis; ubi rem velut in ſuo ſtatu naturali exhibeo: in ſi enim iam abeſſe **N** ab **O**, quam abeſſe homo à **A** ad **DE**, & homo **B** in ſeſſione, ad **FG**, ubi eſt murus in quo pingendum, vel delineandum eſt.

Si ulterius curioſe deſcriptionem hanc conſideres, videbis quam bene reſpondent quadratum **P** in plano, & elevato **Q**, ut naturalis ſtatu rei in ſeſſione Perſpectivæ poſita in facie CCCC, quæ eſt delineatio. Videbis enim viſuales, quæ ſecant in plano ſpatium **RS** ita pariter ſecare ſpatium **TV** in elevatione: & ſegmentum viſualium **XZ** in ſeſſione reſpondere **YK** in elevatione, quod demonstratione non caret.

F I G. II.

Quadratum optice delineatum.

A Square in Perspective.

POSTQUAM deſcripſeris in papyro ſeparata quadratum geometricum **A**, facies duas lineas parallelas inter ſe diſtantes altitudinis, quam dederis puncto oculi; linea inferior erit linea plani, linea ſuperior erit linea horizontalis, ſuper quam ponuntur puncta oculi **O**, & diſtantiæ **E**, quod ſit ex parte quam movis: linea diſtantiæ non debet eſſe brevis magnitudine rerum deſcribendarum. Transfer poſtea circino latitudinem quadrati **A** in **CB**, unde cum viſualibus ad punctum **O**; & ſimiliter transfer longitudinem ipſius quadrati in **DC**, ducens lineam à puncto **D** ad punctum diſtantiæ **E**, tranſeuntem per viſualem **CO**, & ubi illa ſecat, habebis terminum quadrati optici **GFCB**, ducens parallelam ad lineam plani in **GF**.

Ut autem hoc idem citius abſolverem, ſapius chartam complicavi, ut habes in **A**.

AFTER you have drawn on a ſeparate Paper the geometrical Square **A**, make two parallel Lines as much diſtant one from the other, as you would have the Height of the Eye. The under Line is the Plan or Ground-line; the upper Line is that of the Horizon, on which are plac'd the Points of Sight **O**, and of Diſtance **E**, on which ſide you pleaſe. The Line of Diſtance ſhould not be ſhorter than the Extent of the thing to be deſcrib'd in Perſpective. Then with your Compaſſes for the Breadth of the Square **A** on **CB**, and draw Viſuals to the Point **O**; and from the Length of the Square tranſfer'd into **DC**, draw a Line from the Point **D** to the Diſtance **E**; and where that cuts the Viſual **CO**, by drawing a Line parallel to **GF**, you deſcribe the Square in Perſpective **GFCB**.

For the more quick Diſpatch of this, I commonly fold the Paper, as you ſee in **A**.

A a

FIG. III.

FIG. III.

Rectangulus altera parte oblongior optice.

An oblong Square in Perspective.

QUIDQUID in proximo quadrato vidisti, facies in present. Transferes latitudinem BC in BC, & longitudinem in CD, ducens latitudinem BC ad punctum oculi O, & longitudinem CD ad punctum distantie E. Ubi vero hac linea fecit visualem CO, erit terminus rectanguli supradicti FG, BC, ducens parallelam ut supra.

WHAT was done in the preceding repeat in this Third Figure. Transfer the Breadth BC into BC, and the Length into CD, drawing the Breadth BC to the Point of Sight O, and the Length CD to the Point of Distance E. Where this cuts the Visual CO, you terminate the Square FG, BC, by drawing the Parallel, as before.

FIG. IV.

Quadratum duplex optice.

A double Square in Perspective.

EODEM modo congrues quadratum duplex A, transferens circino, aut duplicando charitulum, latitudinem cujuscumque linea, ut vides in punctis 1, 2, 3, 4, 5, 6, super lineam plani in isdem numeris, & ab istis transferes visuales ad punctum O. Postea transfer longitudinem 7, 8, 9, 10, super lineam plani in isdem pariter numeris, & ab istis duc lineas ad punctum distantie E. Ubi bis linea secant lineam 6, 7, O, sunt lineae parallelae ad lineam plani, & quadratum conficitur; parem constructionem facies de quadrato secundo & tertio, facile ex dictis.

THE double Square A is made after the same manner as the former, by transporting either with the Compasses, or folded Paper, the Breadth of every Line, as you see the Points 1, 2, 3, 4, 5, 6, on the Ground-line mark'd with the same Numbers; and from these draw Visuals to the Point of Sight. Then transfer the Points of Length 7, 8, 9, 10, into the Ground-line, as you see also in the same Numbers; and direct their Lines to the Point of Distance E, where these intersect the Visual 6, 7, O, make Parallels to the Ground-line, and the Square is complete. The same is done in describing the middle Square, and that on the other Side.

FIG. V.

Quadratorum vestigia cum elevationibus.

Several Plans of Squares, with their Elevations.

FIGURAM hanc in duas partes divisi; in superiori parte vides tria quadrata optica aliquantulum adumbrata, eaque tam inter se distantia, quanta est distributio super lineam plani. BC erit quadratum primum. Secundum erit in EF. Si ergo posueris longitudinem quadrati in BC, eamque duxeris ad distantiam, secabis in DD visualem AO. Si pariter posueris alterum spatium longitudinis ejusdem quadrati in EF, & duxeris ad lineam distantie, habebis secundum quadratum optice. Idem facies de tertio, & de aliis, quae describenda sunt.

IHAVE divided this Figure into two Parts; In the upper most you have three Squares in Perspective a little shadow'd, distant from one another, according to their Distribution on the Ground-line. BC is the first Square; EF the second. If you then set the Length of a Square on BC, and draw Lines to the Point of Distance, they will intersect the Visual AO in DD. In like manner, if you set another Length of the said Square on EF, and draw to the Point of Distance, you'll have the second Square in Perspective. The same you may do in the third, and as many as you have occasion for.

In secunda parte. Si desideres supra totidem vestigia formare elevationes cuborum, & stylobatarum, ut in inferiori figure parte vides, satis erit ex omni vestigiorum angulo elevare lineas occultas, & apparentes, determinando altitudinem faciei L primo cubo, & anguli ejusdem facies habebit altitudinem omnium aliorum.

In the second Part you see, that if upon the forementioned Plans, the Elevations of Cubes and Pedestals were requir'd, it would suffice to elevate the occult and visible Lines from every Angle of the Plan; and determining the Height of the Face L of the first Cube, the Angles of that Face drawn to the Point of Sight, give the Height of all the others.

Immo etiam totidem cubos formare potes sine lineis occultis, docendo solum apparentes, ut vides in tribus expositis adumbratis, & nitidis, quorum perpendicularia sumuntur ab angulis elevare lineas occultas, & apparentes, determinando altitudinem faciei L primo cubo, & anguli ejusdem facies habebit altitudinem omnium aliorum.

You may form the same Cubes without occult Lines, drawing only those that are apparent, is you see in the three Cubes that are finish'd and shadow'd; the Perpendiculars of which are taken with the Compasses from the Angles of the Plan, as is shewn in H1 of the upper Figure; and the level Lines are transfer'd from the Angles of the Elevation, as in FG of the same Figure.

FIG. VI.

Modus delineandi optice sine lineis occultis.

The Manner of designing in Perspective without occult Lines.

DESIDERANS facili metodo figuram hanc exponere, dabo rationem elevandi corpora sine lineis occultis, ut in superiori tegi; ostendam igitur hic, quomodo quinque cubi adumbrati desumantur ab eorum vestigiis, & elevationibus.

BEING desirous to make this Rule as easy as possible, I shall give a farther Account of raising Solids without the Help of occult Lines, which I only touch'd upon in the foregoing Figure. I therefore here shew you, how the five shadow'd Cubes of this Figure are taken from their Plans and Elevations.

Duo dabo facere preparationes, si libeat, in charis etiam separatis. Prima est formare geometrica vestigia, & elevationem, ut vides in B & A. Secunda est distribuere super lineam plani latitudinem vestigi B, puta in NM, & in duobus proximis: Illius longitudinem MX ducta ad distantiam D, fecit visualem MO in R. Sostium autem obliquatum E utile etiam est alii duobus quadratis positis super eandem lineam plani; anguli quorum transferant ad distantiam B, totidem angulos habebit inter visuales NO, MO, MO. Hoc posito, ducet perpendicularium ad angulum N, quae in elevationibus geometricis semper necessaria est, eaque tertia linea est, quam supra dixi. Transfer postea altitudinem A in NF, cum visualibus FO, NO, & invenies altitudinem ST. Hoc pariter de ceteris eveniet.

Two things preparatory are to be done, and, if you please, on separate Papers. The first is to describe the Geometrical Plan and Elevation, as you see in B and A. The second is, to dispose on the Ground-line the Breadth of the Plan B; as for Example, in NM, and the two next to it. The Length thereof MX, drawn to the Point of Distance D, cuts the Visual MO in R; and the Foreshortning E serves also for the other two Squares plac'd upon the same Ground-line, whose Angles being directed to the Distance D, give as many Angles of the Visuals NO, MO. This done, erect a Perpendicular at the Angle N, which in Geometrical Elevations is always necessary, and is the third Line mention'd in the first Figure. Then carry the Height A on NF, drawing the Visuals FO, NO, which determine the Height ST, and that of the other Squares.

Scien-

Sciendum superest quoniam modo supradictâ preparatione uti possis ad construendos stylobatas adumbratos, & inornatos.

Super aliam igitur chartam dispone situm cum duabus lineis, plani scilicet, & horizontalis, una cum puncto oculi O, & perpendiculari V, ejusdem mensuræ cum supradictâ preparatione, & faciens uti me fuisse vides. Experire postea circino NF æqualia esse 1, 5, & 2, 6. Metire pariter ST, & invenies æqualia 7 & 3; facies postea lineas planas, & visuales ad punctum oculi, & habebis planum superius cubi in 1, 2, 3, 4. Hoc idem faciendum est de aliis. Uno verbo: anguli vestigiatorum dabunt tibi lineas perpendiculares, & anguli elevationis dabunt lineas planas; & atque hoc semper erit.

It remains to be known, how to make use of the foresaid Preparation for the Construction of the shadow'd Pedestals.

On another Paper, therefore, dispose the Horizontal and Ground-lines, together with the Point of Sight O, and the Perpendicular V, keeping the same Measures as in the aforesaid Preparation, and doing as I have done. You may prove by the Compasses, that NF is equal to 1, 5, and 2, 6, and measuring ST, you'll find it equal to 7, 3; then drawing the level Lines, and the Visuals to the Point of Sight, you have the upper Face of the Cube C in 1, 2, 3, 4. The same must be done in the others. In a word, the Angles of the Plan give you the perpendicular Lines, and the Angles of the Elevation give the level Lines, or those parallel to the Ground-line; and this you are always to understand for the future.

F I G. VII.

Aliud exemplum construendi vestigium geometricum, cum elevatione longitudinis.

Another Example of a Geometrical Plan, with the Elevation of its Length.

VIDES hic stylobatam P in quatuor partes divisum, & adumbratum. Si illam optice delineare velis, construere debes supradictas preparationes, geometricam nempe, & optica. Nominem geometrica intelligi vestigium A, & elevationem B; nomine vero optica, totum id quod includitur in G, C, D, E, O.

Transfer igitur latitudinem geometricam CD vestigii A super lineam plani pariter CD, & transfer longitudinem D E super lineam plani pariter D E, operans more solito; & habebis vestigium optice. Transfer postea elevationem H X in C G perpendicularis; ducens visualem G O, eleva ad lineam G O omnem angulum, quem planum facit in linea C O, & habebis altitudinem necessariam etiam sectionis.

Transfer denique circinim aliam chartam angulos vestigii, qui dabunt tibi lineas perpendiculares, & anguli sectionis dabunt lineas planas: Visuales vero ducet ad punctum oculi.

IF you would delineate in Perspective the Pedestal P, which you here see divided into four Parts, and shadow'd; you must make the two foregoing Preparations; namely, the Geometrical and the Perspective. By the Geometrical, I mean the Plan A, and the Elevation B; by the Perspective, all that's contain'd within G, C, D, E, O.

Then transfer the Geometrical Breadth of the Plan A, into C D of the Ground-line; and the Length D E of the said Plan into D E of the Ground-line working after the usual manner; and you will have the Plan in Perspective. Again, set the Elevation H X on C G of the Perpendicular, and drawing the Visual G O, elevate thereto every Angle made by the Plan on the Line C O, and you have all the Heights necessary for the Profile.

Lastly, by the Compasses you transport on a clean Paper the Angles of the Plan, which give the perpendicular Lines; and those of the Profile, which give the level Lines. The Visuals you draw to the Point of Sight.

F I G. VIII.

Stylobata optice.

A Pedestal in Perspective.

HIC etiam postquam feceris supradictas preparationes, geometricam scilicet, & optica; facies præsentem stylobatam adumbratam, transferens circino angulos vestigii, ut construas perpendiculares; & anguli sectionis, ut formes lineas planas, ut supra. Nam sic duo anguli vestigii M O dabunt lineas perpendiculares E F; angulus vestigii R dabit perpendicularem P, & si reliqui anguli dabunt reliquas lineas perpendiculares. Similiter à sectione angulus dabit lineam planam H N. Brevis, primas terminus sectionis I D dabit altitudinem linearum planarum in facie stylobatæ adumbratæ E F H N. Secundus terminus Q dabit altitudinem faciei oppositæ, & occultæ P.

Duo tamen moneo; primum, ut faciens vestigia geometrica, ducas ab elevatione A totidem lineas ad latera vestigii B, quot angulos invenies in prominentiis supradictæ elevationis A cadunt super vestigium B; quare prominentia major in elevatione L facit lineam majorem L in vestigio.

Secundum quod moneo sit, ut volens elongare vestigium optice delineatum M O R à linea plani K, quantum erit spatium C in eadem linea plani, tantumdem elongabitur spatium G à linea ejusdem plani.

HERE also, after you have made the two foregoing Preparations, the Geometrical and the Perspective; this shadow'd Pedestal is made by taking with the Compasses the Angles of the Plan, for drawing the Perpendiculares, and the Angles of the Profile for the level Lines, as before. Thus the two Angles of the Plan M O, give the perpendicular Lines E F. The Angle of the Plan R, gives the Perpendicular P; and the other Angles give their respective Perpendiculares. So likewise in the Profiles, the Angle I gives the level Line H N. In short, the first Out-line of the Profile I D gives the Height of the level Lines on the Front of the shadow'd Pedestal. The other Out-line Q gives the Height of the occult and back part thereof.

Nevertheless, two Things are to be observ'd; first, that in making the Geometrical Plan, you draw from the Elevation A, as many Lines to the Side of the Plan B, as you have Angles in the Projectures of the said Elevation; as is manifest in the pointed Lines, which fall from the upright A, on the Plan B, where that of the greatest Projecture L in the Elevation makes the outer Line L of the Plan.

The second thing to be observ'd, is, That if you would have the perspective Plan M O R as far within the Ground-line K, as the Breadth of the Space G on the same Line; the Space G will then be the Distance thereof from the said Ground-line.

F I G. IX.

Optica delineatio Architecturæ Jacobi Barozzi: & primum, de stylobata Ordinis Etrusci.

The Architecture of Vignola put in Perspective; and first, The Pedestal of the Tuscan Order.

QUANDO QUIDE M omnis nota est Architectura Barozzii, eam hic penitus immutatum cum suis regulis particularibus, & generalibus expono; Metieris autem illam modulis ut fieri solet; qui igitur illam desiderat, in sequentibus figuris inveniet totum, simulque discet optice reddere. Cum autem non minus Optica studio quam Architectura necesse sit, efficere delineamenta

SINCE every one is acquainted with Vignola's Architecture, I determine not to alter it, but to explain it, with its general and particular Rules; measuring the same with Modules, after the usual manner. He therefore that has it not, may find it in the following Figures, and, at the same time, learn the Method of putting it in Perspective. And whereas

rei confrimenda, ab hoc verè, ab illo fici, id est, cum uterque facere debeat vestigium, elevationem, sectionem & faciem, ob id delineari hic stylobatam Ordinis Etrusci cum suo vestigio, quem vides in AB, ut facilius percipias quod in proxima figura dixi, à totidem scilicet angulis prominentiarum elevationis, totidem duendas esse lineas super lineam vestigii, cum hoc necesse sit ad inveniendum illorum angulorum cum istis lineis concurrat in suis degradationibus. Nota longitudinem, quam voco F duziam in G esse illam, à qua non solum nascitur vestigii obliquitas, verum etiam ab illa nascitur obliquitas illius quam voco sectionem E. Ob id in altero huius ejusdem figure stylobata totum id è contrario videbit.

Non amplius repetam quoniam modo eruatur nitida delineatio, de qua superius pluries, dicam tamen angulos primi termini sectionis E daturos lineas planas faciei D, & angulos vestigii daturos omnes perpendiculares.

F I G. X.

Stylobata Doricus, & ratio vitandi difficultatem quamdam quæ occurrit inter illum optice delineandam.

HIC oritur difficultas hæc, Vestigium A optice translatum in C adeo contrahitur, ut à distincte videri nequeat ubi collocetur circum pes, ut transferri possint perpendiculares stylobate adumbrati, totaque hæc difficultas oritur à propinquitate quam habet linea horizontalis, seu punctum oculi cum linea plani. Ut igitur illam vitares: Ducas lineam plani inferius quantum libuerit, & super illam feres denud latitudinem, & longitudinem more solito, retinendo puncta oculi, & distantie OF, & sic videbis vestigia magis minusve distincta; Vestigium enim E distinctius est vestigio D, & D distinctius est vestigio C.

F I G. XI.

Stylobata Ionicus, & ratio vitandi aliam difficultatem in elevationibus.

IN elevationibus etiam sectionis optice potest accidere, ut si visuali L.K. nimis recta sit, sectio B restringatur. Elongando lineam plani ab L ad M, visualis MN erit inclinatur, & consequenter sectio C erit laetior & distinctior.

Nota, difficultatem hanc sæpe sapienter te habiturum in figuris præcipue, quæ multas lineas habent, ut in figura quadragesima secunda, ubi pariter rationem vitandi consensum reddam.

Neque tibi molestia sin, quod in hac figura lineam horizontalem, infra lineam plani collocaverim, id enim feci, ut illarum diversos effectus videas, utque tu in tuis studiis mates, & discas.

F I G. XII.

Stylobata Corinthius cum suis pilis.

FECISSE septimam figuram magno tibi documento erit ad conseruendum & dividendum stylobatam A, & vestigium B, cum nihil addere debeat præter pilas C cum cornicæ, quæ duo latera ambiunt. Optice hoc vestigium delineabis in D, quæ delineatio distinctior est, quia inferius ducit lineam plani, & distinctior etiam est sectio E, cum elongaveris visualem FG. Sic semper agam, ut detur locus figura adumbrata, & ut etiam videas perpendiculares stylobate adumbrati taderet super angulos vestigii, & lineas planas incidere è diametro super angulos sectionis E. Iterum libenter mones, ut facias supradictas preparationes in chartulis separatis, ut initio assuescas transferendis figuris nitidis circino; facile enim tibi postea erit integras machinas Perspective secundioris delineare, ut videbis: in hoc enim tota regula huiusce, & totius operis facilitas sita est.

the Drawing the Plan, Elevation and Profile of what's to be built, is no less necessary for him that studies Perspective, than for the Architect, the first performing in Appearance, what the latter does in Reality; I have therefore here delineated the Tuscan Pedestal, with its Plan, as you see in A B, that you may the better apprehend what I said in the foregoing Figure, That from all the Angles of Projection in the Elevation, Lines must be let fall on the Plan; this being of absolute necessity for finding the Correspondence of the Angles with the Lines in the Perspective Projection. Observe, that what I always call Length, as from F to G, is that which proceeds not only the Foreshortening of the Plan; but also that which I call the Profile E. Wherefore in the opposite Pedestal of the same Figure, you'll see a contrary Disposition of the whole.

I shall not here repeat, how the finish'd Pedestal is taken from these; having so largely spoken of that before; but briefly tell you, that the Angles of the first Out-line of the Profile E give the level Lines of the Face D, and the Angles of the Plan give all the Perpendiculars.

A Dorick Pedestal, with the Manner of shunning a Difficulty, which occurs in putting the same in Perspective.

IN this Figure a Difficulty arises, which is this; That the Plan A put in Perspective in C, is so foreshorten'd, that one can't see distinctly where to place the Compasses, for transferring the Perpendiculars on the shadow'd Pedestal; which is caus'd by the too near Approach of the horizontal Line to the Ground-line. For avoiding this Difficulty, draw another Ground-line as much below the first as you please, and carry the Breadth and Length thereon, after the usual manner, still keeping the same Points of Sight and Distance O and F: And according to the Removal of the Ground-line, the Plans will be more or less distinct; as you see the Plan E is more distinct than D, and D is more so than C.

The Ionick Pedestal, and the Way to shun another Difficulty in the Elevations.

IN Elevations of the Profile in Perspective, it may sometimes happen, that the Visual L K may be so direct, as to render the Profile B too close and narrow; therefore prolonging the Ground-line from L to M, make the Visual MN, which being much more oblique, does consequently render the Profile C more broad and distinct.

And observe that this Difficulty will very often occur; especially in Figures that have many Lines, as the Forty Second Figure has, where I speak also of the Manner to avoid the same.

Nor let it trouble you, that in this figure I have plac'd the horizontal Line below the Ground-line; which I have done, that you might see their different Effects and by changing the Disposition of your Designs, improve and learn.

A Corinthian Pedestal within Pilastrs.

THE Performance of the Seventh figure will be a great Assistance to you, in the Construction and Division of this Pedestal A, and the Plan B; since you have nothing more to add here but the Pilastrs C, and the Mouldings which surround the two Sides. This Plan is put in Perspective in D, and becomes more distinct by my sinking the Ground-line lower; and the Profile E is also more distinct by the Removal of the Visual FG, as mentioned in the foregoing Chapter. This I shall always do, that there may remain Room for the shadow'd Figure, and that you may also see that the Perpendiculars of the shadow'd Pedestal fall directly upon the Angles of the Plan, and that the level Lines directly answer the Angles of the Profile E. I repeat my Advice, that you would make the prebaid Preparations on several Papers, and accustom your self at the beginning, to take off the finish'd Figures with the Compasses; for it will become very easy to you afterward, to design entire Machines of delightful Perspectives, as you'll see hereafter. And indeed in this Practice, the Facility of this Rule, and of all that follows in this Work, does chiefly consist.

Respondetur objectioni factæ circum punctum oculi opticum.

Non omnium sensus est, uni optico operi unicum tantum punctum assignare; e. g. toti spatio for-
nices, tholi, & tribune, quam vocant, expressæ in figura nonagesimatercia, nolunt concedi uni-
cum punctum, volunt concedi plura.



ESPONDEO, objectionem hanc dupliciter intelligi posse: vel enim intelligi pos-
set, non esse assignandum unicum punctum toti illi spatio; atque in hoc sensu vera est;
cum enim spatium illud valde oblongum sit, dividendi debuit in partes, atque assignanda
tribune, quam dicunt, tholo, & fornici, propria puncta; cum hoc communiter do-
ceant, ubi situs nimium est longus, & parum altus. Vel potest intelligi de qualibet
ex dictis partibus, & sic intellecta penitus falsa est. Primo, quia præstantiores
fornices anularum, & templorum, qui optico artificio ornati sunt, si unum opus red-
dunt, à suisque authoribus determinatum idemque unicum punctum accepisse com-
pertum est. Secundo, quia cum ars optica sit mera veri fictio, non id pictor fac-
cere potest, ut à qualibet parte simul veritatem, verum ab uno determinato puncto
id ostendat. Tercio, quia si. e. g. fornici, qui uno integroque optico opere ornatur,
plura puncta assignaveris, nullum reperies locum, unde integrum opus spectare possis, & ad summum ex quoli-
bet puncto tantum partem illius spectabis, nusquam verò totum opus. Ex dictis igitur rationibus concludo ab
inducendis plura puncta in eodem opere induci malum majus eo, quod unicum punctum inducit; quare hoc
omnino necessarium est situi in quo unicum opus formandum sit, ad quod collimare debeant ex omni operis parte
figuræ simul & architectura. Quo posito, negari rationabiliter nequit, à me etiam concedi unicum punctum spe-
ctando fornici amplo, aptoque ad representandum unicum opus, qualis est fornix in D. Ignatii templi. Si verò
propter situm irregularem, ut dicimus, architectura extra punctum aliquantulum deformetur, & figuræ ariter
operi optico intermixta extra commune punctum aliqualem patientur deformitatem, præterquam quod à supra-
dictis rationibus excusatur, nequaquam id vitio arti est, sed laudi; quandoquidem ars à suo puncto exhibet,
proportione posita, ut rectum, ut planum, ut concavum, id quod tale non est.

An Answer to the Objection made about the Point of Sight in Perspective.

Every one does not approve, that in Perspective of great Extent one Point of Sight only should be assign'd the whole Work; as for Example, In the whole Length of the Nave, Cupola, and Tribune, expres'd in the Ninety-third Figure, they will by no means allow of one single Point, but insist upon several.



ANSWER, This Objection may be understood two ways; either that one Point alone is not sufficient for that whole Length, and in this sense 'tis true; for that Space being very long, it ought to be divided into Parts, and proper Points assign'd to the Tribune, Cupola, and Vault of the Nave; as is commonly taught, where the Situation is of a great Length, and not very high. Or it may be understood of any One of the said Parts, and so is altogether false. *First*, Because in the Vaults of Halls or Churches painted by the greatest Masters, if they consist of one Piece only, we find but one Point of Sight assign'd. *Secondly*, Since Perspective is but a Counterfeiting of the Truth, the Painter is not oblig'd to make it appear real when seen from *Any* part, but from *One* determinate Point only. *Thirdly*, Because, if in a Vault, for Example, where you would paint one entire Design of Architecture and figures, you assign several Points of Sight, you will find no place whence you may take a perfect View of the Whole, and at best you can only view each Part from its proper Point. From all which Reasons I conclude, that the Introduction of many Points into the same Piece, is more injurious to the Work, than making use of one only: Wherefore 'tis absolutely necessary in a regular Situation, and where the Work is all of a piece, so to place the same, as that the Figures and Architecture may from every part of the Design have respect thereto. This suppos'd, I confess that I myself make use of one Point of Sight only, in very large Vaults that consist of one Design, such as that of the Nave of the Church of S. Ignatius. If therefore thro' the Irregularity of the Place, the Architecture appear with some Deformity, and the Figures intermix'd therewith seem any thing lame and imperfect, when view'd out of the proper Point, besides the Reasons just now given, it's so far from being a Fault, that I look upon it as an Excellency in the Work, that when view'd from the Point determin'd, it appear, with due Proportion, streight, flat, or concave; when in reality it is not so.

I N D E X.

INSTRUMENTA paranda,

Explicatio linearum plani & horisontis, ac punctorum oculi & distantie,

Modus delineandi optice quadratum, Optica delineatio rectanguli, altera parte longioris, Optica descriptio quadrati duplicis, Vestigia quadratorum cum elevationibus, Modus optice delineationis absque lineis oculiis,

Aliud exemplum vestigii geometrici, cum elevatione longitudinis,

Optica projectio stylobata, Optica delineatio Architecturae Jacobi Barozzii, & primum de stylobata Ordinis Etrusci, Optica deformatio stylobatae Dorici; ubi de modo vitandi confusionem in vestigiis delineandis, Stylobatae Ionici deformatio; ubi de vitanda confusione in elevationibus, Deformatio stylobatae Corinthii, cum duabus pilis,

Projectio stylobatae Ordinis Compositi, Deformatio circulorum, Optica delineatio columnae, Optica projectio basis Etruscae, Deformatio basis Doricae, Optica delineatio basis Ionicae, Optica imminutio basis Corinthiae, Basis Atticurga optice imminuta, Optica imminutio capitelli Etrusci, Optica projectio capitelli Dorici, Deformatio capitelli Ionici, Optica projectio capitelli Corinthii, Optica descriptio capitelli Compositi, Deformatio coronicis Etruscae, Optica delineatio coronicis Doricae, Preparatio figurae sequentis, Optica projectio aedificii Dorici, Optica projectio aedificii Ionici; ubi de modo jungendi fictum cum vero, Optica projectio coronicis Corinthiae, cum capitello & summitate columnae, Delineatio geometrica coronicis Ordinis Compositi,

Deformatio coronicis Compositae, Preparatio ad figuram triglesimam quintam, Deformatio coronicis Compositae ad latius inspectam, Preparatio ad figuram triglesimam septimam, Deformatio columnae Etruscae, Preparatio ad figuram triglesimam nonam, Deformatio aedificii Dorici, Vestigium geometricum aedificii Ordinis Dorici, Elevatio geometrica aedificii Dorici, Modus vitandi confusionem in contractione vestigiorum & elevationum, Contractio vestigii figurae quadragesimae, Contractio elevationis figurae quadragesimae primae, Dimidium aedificii Dorici optice deformati, Alterum dimidium ejusdem aedificii, Vestigia aedificii Ionici, Elevatio geometrica aedificii Ionici, Deformatio elevationis aedificii Ionici, Architectura Ionica, Crado Corinthius, Delineatio columnae spiralis Ordinis Compositi,

Ordines Architecturae desumpti ex Palladio & Scamozzi.

FIG.

UTENSILS for Drawing.

I. Explication of the Lines of the Plan and Horizon, and of the Points of the Eye and of the Distance.

II. The Manner of delineating a Square in Perspective.

III. The Delineation of an oblong Square in Perspective.

IV. The Optical Delineation of a double Square.

V. Plans of Squares with their Elevations.

VI. The Manner of designing in Perspective without occult Lines.

VII. Another Example of a Geometrical Plan and Upright put into Perspective.

VIII. The Projection of a Pedestal in Perspective.

IX. The Architecture of *Vignola* in Perspective, and first of his Pedestal of the *Tuscan* Order.

X. A *Doric* Pedestal in Perspective, with the Manner of avoiding Confusion in designing the Plans.

XI. The *Ionick* Pedestal in Perspective, with the Manner of avoiding Confusion in Elevations.

XII. The *Corinthian* Pedestal, with its Pilasters, in Perspective.

XIII. The Projection of a Pedestal of the *Composite* Order.

XIV. Circles in Perspective.

XV. A Column in Perspective.

XVI. The *Tuscan* Base in Perspective.

XVII. The *Doric* Base in Perspective.

XVIII. The *Ionick* Base in Perspective.

XIX. The *Corinthian* Base in Perspective.

XX. The *Attick* Base in Perspective.

XXI. The *Tuscan* Capital in Perspective.

XXII. The Projection of a *Doric* Capital in Perspective.

XXIII. The *Ionick* Capital in Perspective.

XXIV. The *Corinthian* Capital in Perspective.

XXV. The *Composite* Capital in Perspective.

XXVI. The *Tuscan* Entablature in Perspective.

XXVII. The *Doric* Entablature in Perspective.

XXVIII. Preparatory to the following Figure.

XXIX. A Projection of the *Doric* Order in Perspective.

XXX. An *Ionick* Work in Perspective, with the manner of reconciling the fictitious to the solid Architecture.

XXXI. The Optical Projection of a *Corinthian* Cornice, with the Capital and part of the Column.

XXXII. The Geometrical Design of a Cornice of the *Composite* Order.

XXXIII. A *Composite* Cornice in Perspective.

XXXIV. Preparatory to the Thirty-fifth.

XXXV. A Side-View of the *Composite* Cornice in Perspective.

XXXVI. Preparatory to the Thirty-seventh.

XXXVII. A *Tuscan* Column in Perspective.

XXXVIII. Preparatory to the Thirty-ninth.

XXXIX. A Piece of *Doric* Architecture in Perspective.

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XLI. The Geometrical Elevation of the foregoing Design.

XLII. The Manner of avoiding Confusion in reducing Plans and Elevations into Perspective.

XLIII. The Plan of the Fortieth Figure in perspective.

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XLV. One half of the *Doric* Design in Perspective.

XLVI. The other half of the same Design.

XLVII. The Plan of an *Ionick* Building.

XLVIII. Geometrical Upright of the foregoing *Ionick* Design.

XLIX. The Elevation of the *Ionick* Design in Perspective.

L. A Design of *Ionick* Architecture.

LI. A *Corinthian* Design in Perspective.

LII. The Description of a wreath'd Column of the *Composite* Order.

LIII. A. The Orders of Architecture taken from *Palladio* and *Scamozzi*. Modus

I N D E X.

*Modus triplex delineandi columnas spirales,
Vestigia edificii Ordinis Corinthii,
Elevatio edificii Ordinis Corinthii,
Deformatio vestigiorum & elevationis edificii Co-
rinthii,
Adumbratio figuræ sequentis,
Edificium Ordinis Corinthii octangulare,
Vestigia Tabernaculi octangulare,
Tabernaculum octangulare,
Modus erigendi machinas quæ constant pluribus ordi-
nibus telariorum,
De reticulandis telariis, quæ representent edificia
solida,
Vestigia edificii quadrati,
Edificium quadratum,
Vestigium edificii rotundi optice imminutum,
Projectio edificii rotundi,
Vestigium geometricum, ac prima præparatio ad fi-
guram septuagesimamprimam,
Elevatio geometrica vestigii præcedentis, & secunda
præparatio ad figuram septuagesimamprimam,
Deformatio vestigii figuræ sexagesimæ septimæ, &
præparatio tertia ad figuram septuagesimamprimam,
Deformatio elevationis figuræ sexagesimæ octavæ, &
præparatio quarta ad figuram septuagesimamprimam,
Theatrum representans nuptias Canæ Galilee, con-
structum Romæ anno 1685, in expositione Ven.
Sacramenti, in templo Farnesiano Societatis Jesu,
De theatris scenicis,
Aliud vestigium theatri; ubi de modo inveniendi
ejus punctum,
Sectio scenarum theatri,
Elevatio scenarum coram inspectarum; ubi docetur
artificium, ut scenæ oblique apparent rectæ,
Modus delineandi exemplar scenarum,
Modus reticulandi & pingendi scenas theatri,

De projectionibus horizontalibus,
Projectiones vestigii & elevationis mutuli,
Horizontalis projectio mutuli inumbrati,
Stylobatæ Corinthiæ horizontaliter contractæ,
Columna Corinthiæ horizontaliter deformata,
Capitella Corinthiæ horizontaliter contracta,
Coronix Corinthiæ,
Coronix Corinthiæ horizontaliter contracta,
Horizontalis projectio columnæ,
Præparatio necessaria ad sequentem figuram, & ad pro-
jectiones horizontales in laqueariis vel testudinibus,

Horizontalis projectio balustrarum figuræ octogesi-
mæ septimæ, cum brevi distantia,
Horizontalis projectio Architecturæ in laqueari quadrato,
Horizontalis projectio tholi,
Tholus figuræ nonagesimæ, cum luminibus & umbris,
Tholus octangularis,
Vestigium templi Ludovisiani S. Ignatii alme urbis,
Orthographia templi Ludovisiani,
Aliæ præparationes ad figuras 98 & 99,
Aliæ præparationes ad figuras 98 & 99,
Aliæ præparationes ad figuras 98 & 99,
Quadrans Architecturæ horizontalis in fornice, cum
luminibus & umbris,
Alter quadrans totius operis,
Modus reticulationis faciendi in testudinibus,*

- FIG.**
LIII. B. Three different ways of delineating wreath'd Columns.
LIV. The Plan of a Design of the *Corinthian* Order.
LV. The Geometrical Elevation of a *Corinthian* Work.
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LIX. The Plans of an Octangular Tabernacle.
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LXXII. Of Scenes for the Stage.
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LXXXVII. The Preparation necessary to the following Figure, and to all other horizontal Perspectives, whether on flat or vaulted Cielings.
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XC. A Cupola in horizontal Perspective.
XC. I. The Cupola of Fig. 90, with its Lights and Shades.
XCII. An Octangular Cupola.
XCIII. The Geometrical Plan of *S. Ignatius's* Church at *Rome*.
XCIV. The Orthography of *S. Ignatius's* Church.
XC. V. Other Preparations to the 98th and 99th Figures.
XC. VI. Other Preparations to the 98th and 99th Figures.
XC. VII. Another Preparation to the 98th and 99th Figures.
XC. VIII. Fourth-part of the Architectonical Design on the Vault of *S. Ignatius's* Church, with its Lights and Shades.
XCIX. Another Quarter of the whole Design.
C. The Method of drawing the Net-work on Vaults.



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